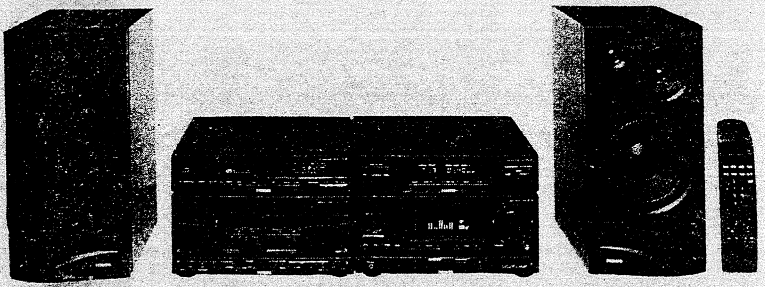
MINI SYSTEM FW60

/21/22/25

Service
Service
Service



Service Manual

The system FW60 consist of:

Receiver	70FR060
Mini-Cass. CD	70CD060
L.S Box left	FB 60
L.S Box Richt	FB 60
Remote control	RH6622

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4822 725 23917

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PCS 57 700

GB Each version of FW60 system consists of following parts:
NL Het systeem FW60 bestaat,voor elke versie,uit de volgende componenten:
F Le systéme FW60 comporte les composants suivants selon la version:
D Das FW60 System baut sich aus für jede Ausführung folgenden Bauteilen auf:
I Il sistema FW60 consiste dei componenti di cui sotto a secondo della versione:

For repair information of the set use the next service manuals:

Receiver: Use service manuel **Receiver 70FR060** codnr.4822 725 23914
Mini-Cass.CD: use service manuel **CD-Cass. 70CD060** codnr.4822 725 23752
L.S.Box : Use service manuel **HiFi Loudspeakerbox - Programme 70FB60 70FB70 70FB80** codnr.4822 725 24096

The version FW60/21 consist of:
70FR060/01U
70CD060/00
FB60/00 Left
FB60/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW60 codnr.4822 736 21511
FM Dipole antenne codnr.4822 303 50032
Cord set codnr.4822 321 10523
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 321 61708

The version FW60/22 consist of:
70FR060/02U
70CD060/00
FB60/00 Left
FB60/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW60 codnr.4822 736 21511
FM Dipole antenne codnr.4822 303 50032
Cord set codnr.4822 321 10249
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 321 61708

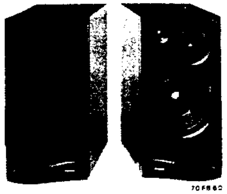
The version FW60/25 consist of:
70FR060/05U
70CD060/00
FR60/00 Left
FB60/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW60 codnr.4822 736 21511
FM Dipole antenne codnr.4822 303 50032
Cord set/25 codnr.4822 321 10635
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 321 61708
UHF socket /25 codnr.4822 267 10274

HiFi Loudspeakerbox - Programme

70FB60
70FB70
70FB80

Service
Service
Service



Service Manual

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(GB) 4822 725 24096

PHILIPS

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1. INTRODUCTION:

How to use this manual?

- Diagram
  The numbers near the symbols correspond to the "Item numbers"

- Loudspeakers
  The loudspeakers are divided into:

- Tweeters (for high tones)	TW
- Piezo (for high tones)	Pi
- Woofers (for low tones)	WO

  Next to the item number the 12-digit service codenumber of the loudspeaker is given.

- Capacitor, resistor, coil
  Next to the item number the service codenumber has been stated as well as the technical data of these components.

- The item numbers on the exploded vieuw shows the different mechanical parts which may be available as a service spare part.
  For their codenumbers and description see "list of mechanical parts".

2. TECHNICAL SPECIFICATIONS:

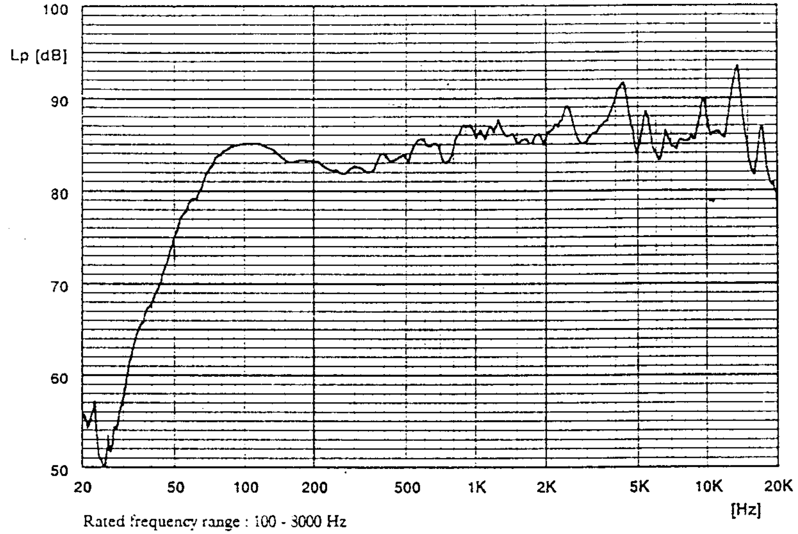
	FB 60	FB 70	FB 80
2.1 General data:			
Type of system	3 way bass reflex	3 way bass reflex	3 way bass reflex
Acoustical volume	9,2 L	9,2 L	9,2 L
Total volume	16,2 L	16,2 L	16,2 L
Outside dimension W X H X D	172,5 X 345 X 272	172,5 X 345 X 272	172,5 X 345 X 272
Weight exclusive packaging	4,2 kg	4,4 kg	4,5 kg
2.2 Electro-acoustical data:			
Rated impedance	6 Ohm	6 Ohm	6 Ohm
Rated power PHC	30 Watt	50 Watt	60 Watt
Maximum power Pmax	50 Watt	90 Watt	100 Watt
Sensitivity	88 dB/W/1 m	88 dB/W/1 m	87 dB/W/1 m
Operating power	6,3 Watt	6,3 Watt	6,3 Watt
Resonance frequencies	35 & 90 Hz	35 & 100 Hz	35 & 100 Hz
Cross-over frequencies	2500 Hz	3000 Hz	2500 Hz
Frequency range	70 - 20 000 Hz	65 - 20 000 Hz	60 - 20 000 Hz
Sweep voltage	6 volts	6 volts	6 volts

Type : FB60

Nr : 60.01177

Thursday, January 23, 1992, 13.16h

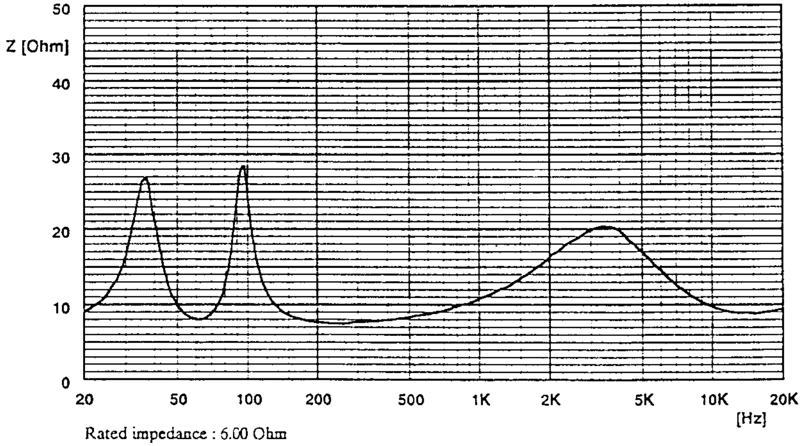
Measured at 1m with a power of 1.00 watts (Pref = 20 uPA).



Rated frequency range : 100 - 3000 Hz
Characteristic sensitivity : 85.6 dB (mean dB value 85.1 dB)

Effective frequency range : 58 - 20000 Hz
Maximum sensitivity in octave at 3253 Hz : 88.3 dB

Measured with a power of 50 milliwatts.

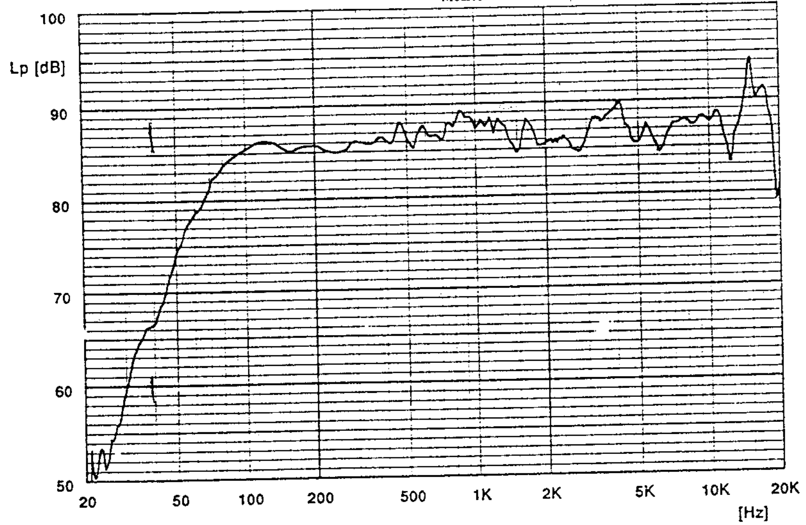


Rated impedance : 6.00 Ohm
Coil resistance : 0.00 Ohm
Resonance frequency : 36.7 Hz
Impedance peaks : 93.8 Hz, 3400.0 Hz

Type : FB70

Nr : 60.01092

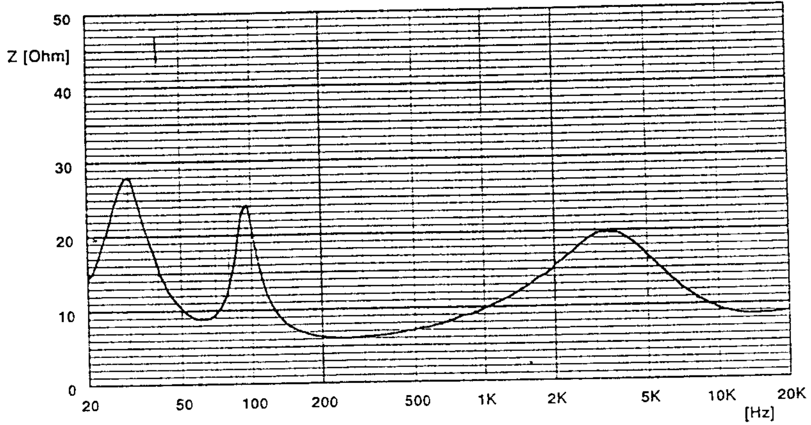
Thursday, January 23, 1992, 13.13h



Measured at 1m with a power of 1.00 watts (Pref = 20 uPA)

Rated frequency range : 100 - 8000 Hz
Characteristic sensitivity : 86.7 dB (mean dB value 86.5 dB)

Effective frequency range : 66 - 18800 Hz
Maximum sensitivity in octave at 12728 Hz : 89.4 dB



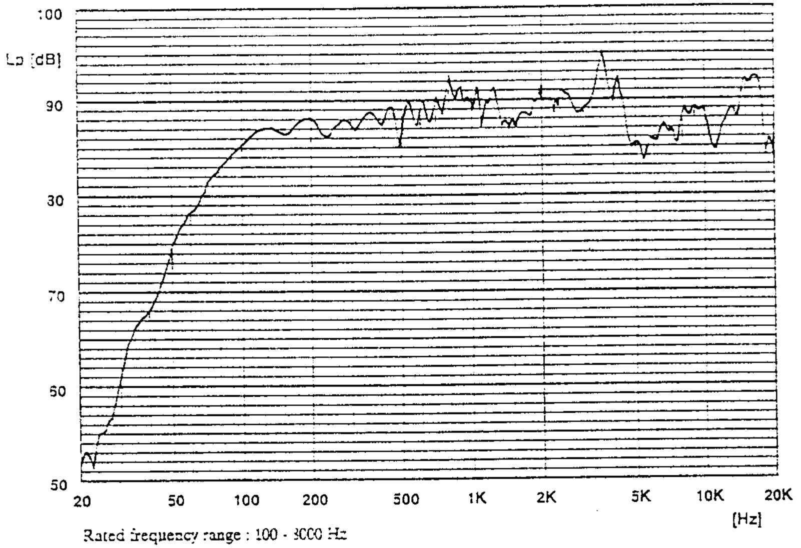
Measured with a power of 50 milliwatts.

Rated impedance : 6.00 Ohm
Coil resistance : 0.00 Ohm
Resonance frequency : 29.7 Hz
Impedance peaks : 93.8 Hz, 3300.0 Hz

Type : FB80

Nr : 60.01114

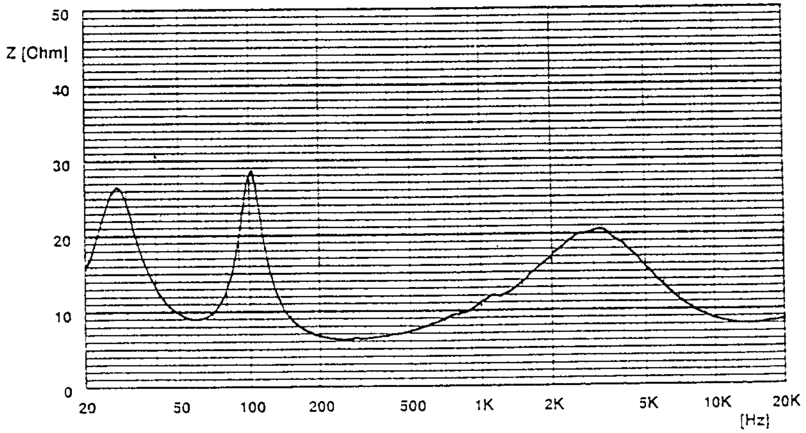
Friday, January 24, 1992, 13.51h



Measured at 1m with a power of 1.00 watts (Pref = 20 uPA)

Rated frequency range : 100 - 8000 Hz
Characteristic sensitivity : 88.3 dB (mean dB value 88.4 dB)

Effective frequency range : 72 - 20000 Hz
Maximum sensitivity in octave at 3111 Hz : 91.0 dB

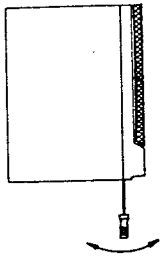


Measured with a power of 50 milliwatts.

Rated impedance : 6.00 Ohm
Coil resistance : 0.00 Ohm
Resonance frequency : 27.5 Hz
Impedance peaks : 100.0 Hz, 3200.0 Hz

3. DISMANTLING INSTRUCTIONS:

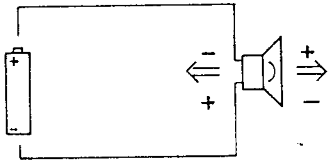
Remove the front of the loudspeakerbox (item 34 or 35) by pulling at the "front" edges.
If the frame isn't comming loose it could be usefull to use a flat screw-driver, and jerk the front loose at the bottom side of the box (see drawing).
Unscrew the speakers, and you have acces to the box.



4. SERVICING HINTS:

Checking the speaker polarity:

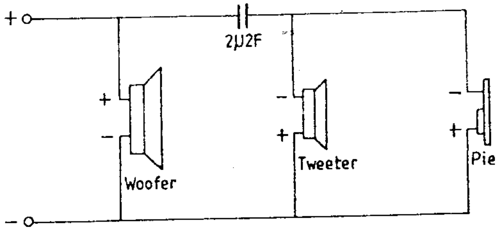
You can check the speaker polarity with a battery of 1,5 volts up to 3 volts.
When the speaker is connected "in phase", the speakercone is always moving forwards. It means the + of the battery is connected with the + of the speaker.



⇒ cone movement

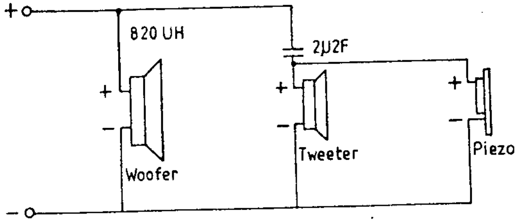
5. WIRING DIAGRAM - LIST OF ELECTRICAL PARTS

Type : FB70 FB60



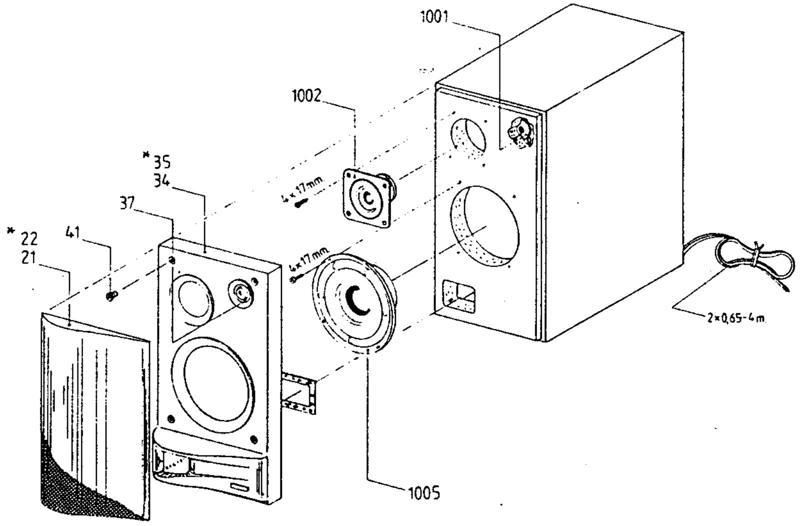
1001	4822 280 10259	PIEZO
1002	4822 240 70247	CT106FK
1005	4822 240 50326	13FK586
2001	4822 124 21435	2,2UF/100V-DC BIPOL

Type : FB80



1001	4822 280 10259	PIEZO
1002	4822 240 70247	CT106FK
1005	4822 240 60331	AD 70654/W6DC
2001	4822 124 21435	2,2UF 100V-DC BIPOL

7. EXPLODED VIEUW


1001
1002
*35
34
37
*22
41
21
4×17mm
4×17mm
2×0,65-4m
1005

8. LIST OF MECHANICAL PARTS

21	4822 458 40561	LEFT-VERSION
22	4822 458 40562	RIGHT-VERSION
34	4822 445 30238	LEFT-VERSION
35	4822 445 30239	RIGHT-VERSION
37	4822 240 80043	DOME
41	4822 325 80497	GROMMET

Service Information

1992-10-28

LOUDSPEAKER BOX 70/FB 60
70/FB 70
70/FB 80

A92 / 431

Product Service Group CE Audio

In the service manual (4822 725 24096) of Loudspeakerboxes 70 FB 60 - 70 FB 70 and 70 FB 80, the list of mechanical parts on page 8 should be replaced as mentioned below :

8. LIST OF MECHANICAL PARTS

For FB 60 and FB 70

21	4822 458 40561	LEFT-VERSION
22	4822 458 40562	RIGHT-VERSION
34	4822 445 30238	LEFT-VERSION
35	4822 445 30329	RIGHT-VERSION
37	4822 240 80043	DOME
41	4822 325 80497	GROMMET
64	4822 267 31331	CLICKFIT

For FB 80

21	4822 458 40561	LEFT-VERSION
22	4822 458 40562	RIGHT-VERSION
34	4822 445 30236	LEFT-VERSION
35	4822 445 30237	RIGHT-VERSION
37	4822 240 80043	DOME
41	4822 325 80497	GROMMET
64	4822 267 31331	CLICKFIT

Service
Service
Service

Service Information

1992-08-25

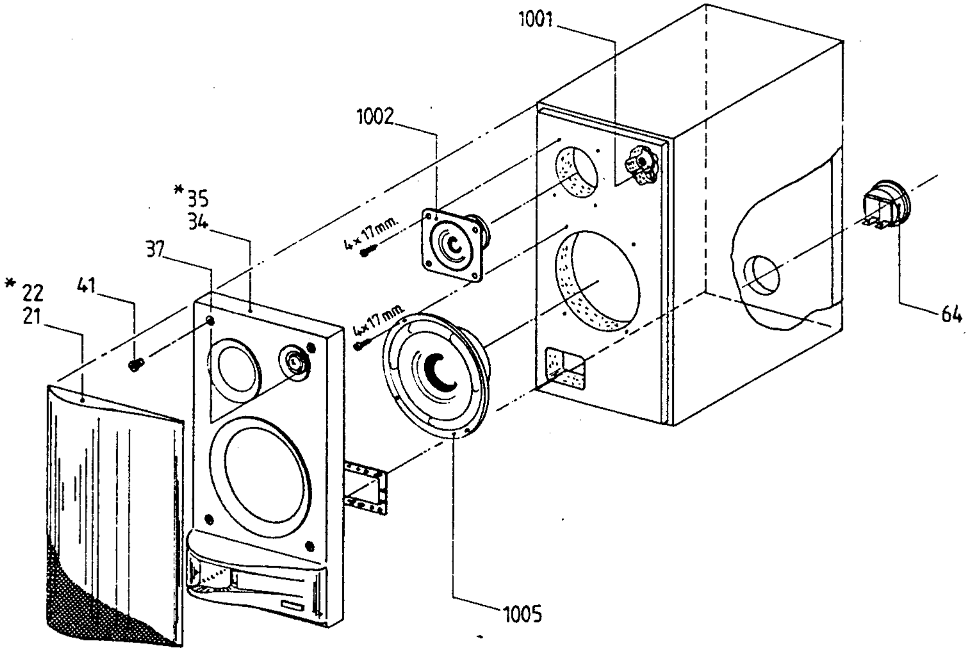
Loudspeakerbox 70/FB 60
70/FB 70
70/FB 80

A92/254

Product Service Group CE Audio

* In the loudspeaker boxes 70/FB 60 - 70/FB 70 and 70/FB 80
a click fit is added.
This from DD number 01 onwards.

4822 267 3133 (pos. 64 on exploded view)



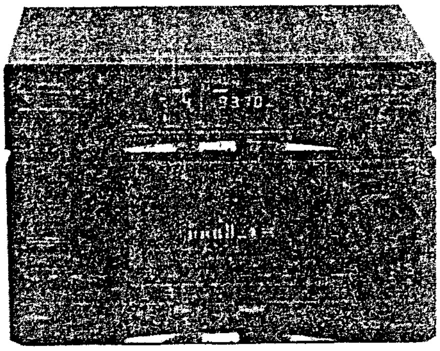
Service
Service
Service

SERV. 32199

Receiver 70FR060

/01U/02U/05U/10U

Service
Service
Service



ServiceManual

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PCS 57 684

SPECIFICATION

General:

Mains voltage	:230V ±10% 50Hz for/00/02/14
	:240V ±10% 50Hz for/05
	:120/230V ±15% 50Hz/60Hz for/01
	:230V ±15% 50Hz for/14
	:230V-240V ±10% 50Hz for/10
	:120V ±10% 60Hz for/17
Power consumption	:≤ 150W at 2x30W output power
	:≤ 20W at stand by
External supply	:For CCD60
Timer setting	:Timer / clock
Remarks time setting	:AM/PM/24 hours
Slumber time setting	:10 - 30 - 60 minutes
Volume control wake signal	:Yes
Mains breakdown buffer	:4,5V for 1 year
Alarm	:Tuner/CD/Cassette/DCC/Buzzer
Alarm setting	:2 + News (only for Tuner)
Battery	:3 x R6
Dimensions:(wxhxd)	:260x172,5x254 mm
Special features	:1 x 5 band spectrum analyser in FTD display
	:1 x 5 band equaliser: -5 free memories in presets
	-5 fixed (classic-vocal-rock-jazz-disco)
	-1 flat
	:Surround switch

Amplifier:

Output power &	:≥2X30W at 6Ω D≤10% (EIAJ) ±0,5dB for/01/10/14
Distortion (D)	:2x22W at 8Ω D=≤0,7%(IEC)
Sign.Noise:	
Phone input	:≥73dB (A-curve weighted)
(IEC at Prated and Rsource=2k2)	
Other inputs	;≥75dB (A-curve weighted)
(IEC at Prated and Rsource=22k)	
Crosstalk :	
Between stereo channels	:≥50dB (100Hz.....10kHz)
source	:≥50dB (100Hz.....10kHz)
Headphone	:3,5mm stereo jack
Output voltage	:5V EMF at 22W/8Ω ±1dB
Output impedance	:120Ω ±10%
Frequency response:	
linear inputs	:40Hz -20kHz ±3dB
phone	:40Hz -18kHz ±3dB
Tone controle:	
Equaliser 2x5 band	:160Hz - 400Hz -1kHz -2,5kHz -6,3kHz
	+10dB to -10dB in steps of ±2dB
DBB(volume ≤-40dB ±2dB at 100Hz)	:+10dB (±2dB)
Input sensitivity	
for 22W/8Ω ±1dB	:AUX 250mV Ri ≥ 20kΩ
	:CD 350mV Ri ≥ 20kΩ
	:Tape 350mV Ri ≥ 20kΩ
	:DCC 500mV Ri ≥ 20kΩ
	:Phone/MM 2,5mV Ri ≥ 47kΩ/220pf
Output voltage	:Tape 250mV Ro < 2k5
	:DCC 250mV Ro < 2k5

Tuner: FM Part

Tuning range	: 87,5MHz to 108MHz
	: 65,81MHz to 74MHz and 87,7MHz to 108MHz only/14
	: 76MHz to 90MHz only/06
Aerial input	: 75Ω coaxiaal
IF	: 10,7MHz ±25kHz
Sensitivity mono	: 1,1µV 26dB S/R
stereo	: 30 µV 50dB S/R
Selectivity	: 50 dB at 300kHz
Channel separation	: 40 dB (1kHz Mod.)
Distortion THD mono	: 0,5 %
stereo	: 0,7 %
Signal/noise mono	: 72 dB IEC weighted
ratio stereo	: 68 dB " "

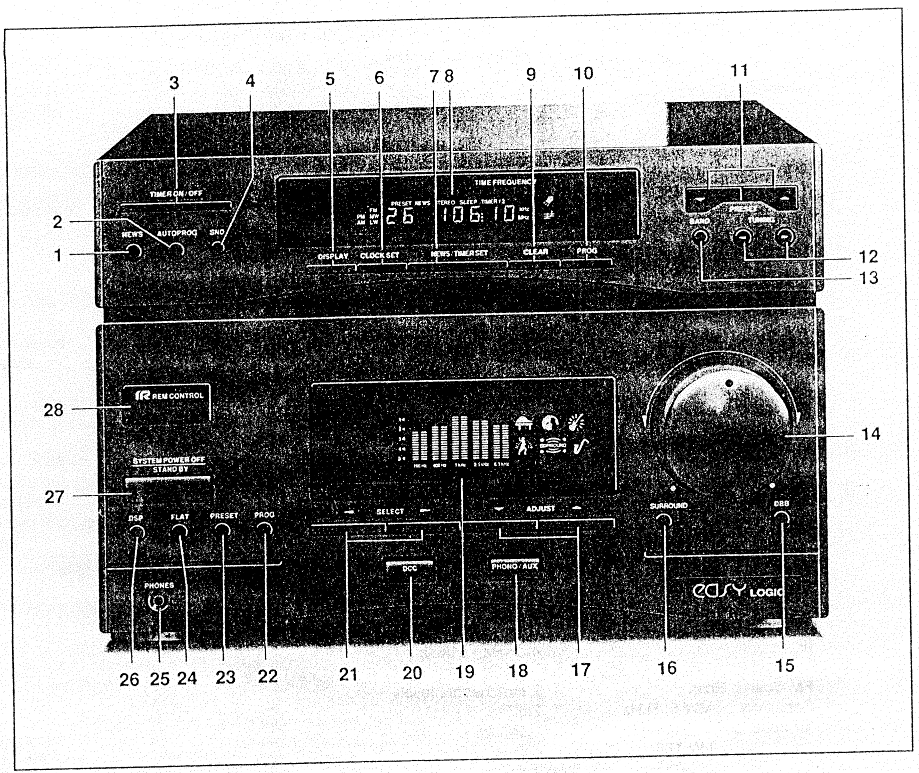
AM PART

Tuning range MW	: 522kHz to 1611kHz
	: 522kHz to 1629kHz only/06
	: 530kHz to 1710kHz only/17
	: 530kHz to 1710kHz or 522kHz to 1611kHz only/01
LW	: 153kHz to 279kHz
Aerial input	: Frame aerial
IF	: 450kHz ±1kHz
FM Search Scan	: 2 switcheable levels
Sensitivity MW 558kHz	: 2mV/m
for 26dB S/R 1494kHz	: 1,5mV/m
LW 155kHz	: 4mV/m
270kHz	: 2,5mV/m
Selectivity	: 30dB at 9kHZ
Suppression IF	: 60dB

Digital Part

Switcheable FM	: 50kHz
	:100kHz only/06/17
	: 30kHz or 50kHz only/14
MW	: 9kHz
	: 10kHz only/17
	: 9kHz (Range 522-1611) only/14
	: 10kHz (Range 530-1710) only/14
LW	: 3kHz
Presets FM/MW/LW	: 30 random

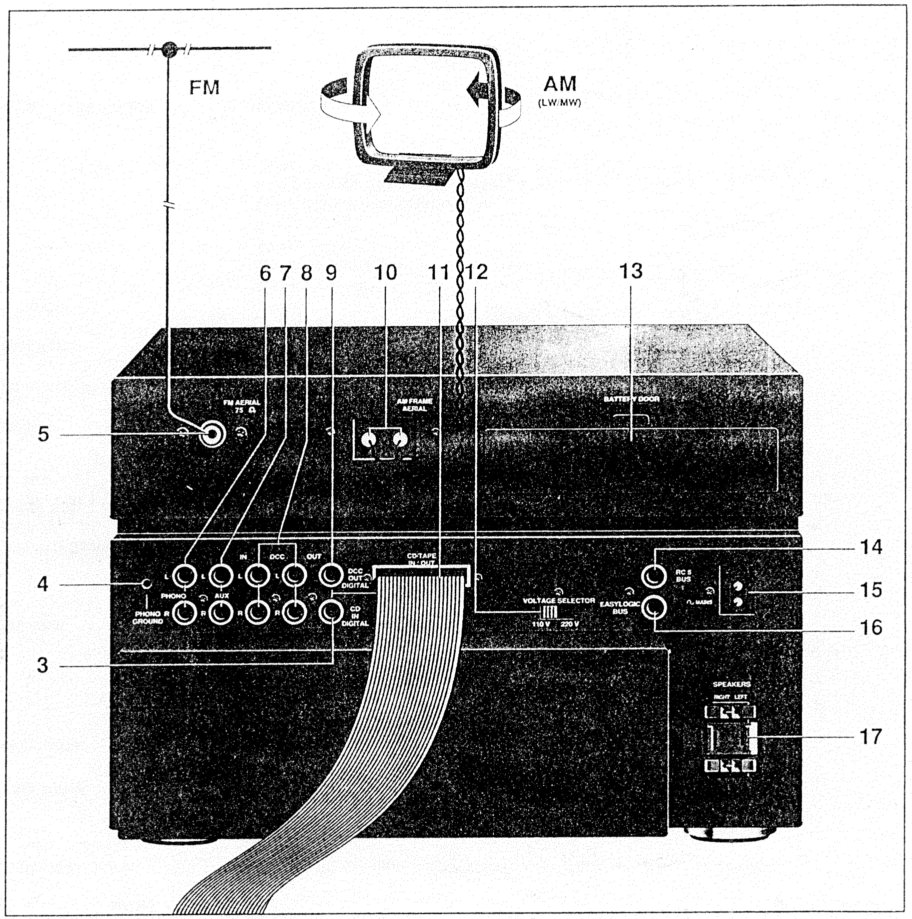
CONTROLS


1
2
3
4
5
6
7 8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
TIMER ON / OFF
NEWS
AUTOPROG
SND
DISPLAY
CLOCK SET
NEWS / TIMER SET
CLEAR
PROG
PRESET
BAND
TUNING
REM CONTROL
SYSTEM POWER OFF STAND BY
DSP
FLAT
PRESET
PROG
PHONES
SELECT
ADJUST
DCC
PHONO / AUX
SURROUND
DBB
easy LOGIC

	Pos nr.
1 News Button	1664
2 Autoprogram Button	1663
3 Timer ON/OFF Button	1665
4 Prog Button	1662
5 Display Button	1661
6 Clock Set Button	1660
7 News/Timer Set Button	1659
8 Display Tuner	1681
9 Mono Button	1657
10 Clear Button	1656
11 Preset Up Button	1650
Down Button	1654
12 Tune Search UP Button	1651
DOWN Button	1652
13 Band Button	1653
14 Volume Knob	3790

	Pos nr.
15 DBB Button	1666
16 Surround Button	1667
17 Adjust Up Button	1669
Down Button	1670
18 Aux/Phono Button	1668
19 Display amplifier	1682
20 DCC Button	1678
21 Select Richt Button	1672
Left Button	1671
22 Program Button (Equal)	1677
23 Preset Button (Equal)	1675
24 Flat Button	1674
25 Headphone socket	1710
26 SFC Button	1676
27 System OFF/STANDBY	1271
28 IR Eye	6652

CONNECTIONS


FM
AM
(LW/MW)
3
4
5
6 7 8 9
10
11
12
13
14
15
16
17
FM AERIAL 75 Ω
AM FRAME AERIAL
BATTERY DOOR
PHONO
AUX
DCC
IN
OUT
DCC OUT DIGITAL
CD IN DIGITAL
PHONO GROUND
CD/TAPE IN / OUT
VOLTAGE SELECTOR
110 V
220 V
EASYLOGIC BUS
RC 5 BUS
MAINS
SPEAKERS
RIGHT LEFT

	Pos nr.
3 CD In Digital	1463
4 Phono Ground	
5 FM Aerial	1110
6 Phono In	1551
7 Aux In	1551
8 DCC In/Out	1551
9 DCC Out Digital	1463
10 AM Frame aerial	1111

	Pos nr.
11 CD/Tape In/Out	1458
12 Voltage Selector	
13 Battery Compartment	
14 RC-5 Bus	1462
15 Mains Socket	1270
16 Easy Logic Bus	1462
17 Speakers	1261

DISMANTLING OF SOURCE SELECTOR

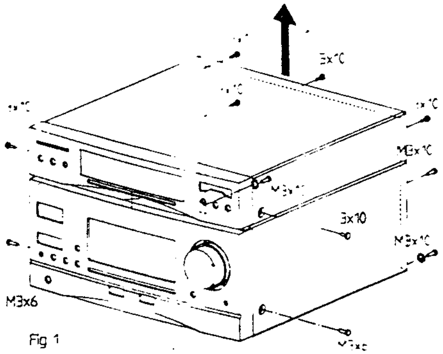

3x10
M3x10
3x10
M3x10
M3x6

Fig 1

1 Remove 2x M3X6 screws
6x 3X10 screws
2x M3X10 screws with ring
1x M3X10 screw see fig 1
2 Remove cover as shown in fig 1 arrow 1

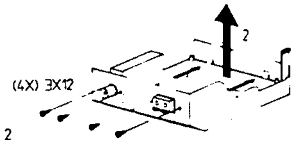


Fig 2

3 Remove 4x 3X12 screws see fig 2
4 Remove Tuner PCB as shown in fig 2 arrow 1-2

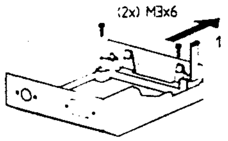


Fig 3

5 Remove 2x M3X6 screws see fig 3
6 Remove cover as shown in fig 3 arrow 1

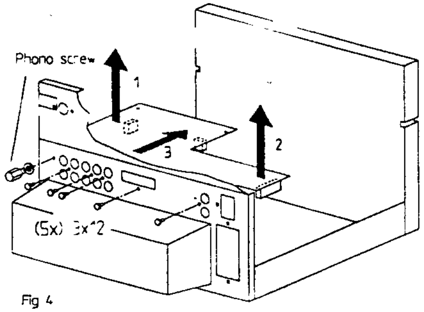

Phono screw
1
2
3
(5x) 3x12

Fig 4

7 Remove 5x 3X12 screws
1x Phono ground screw see fig 4
8 Remove PCB as shown in fig 4 arrow 1 - 2 - 3

DISMANTLING OF FRONT & PCB

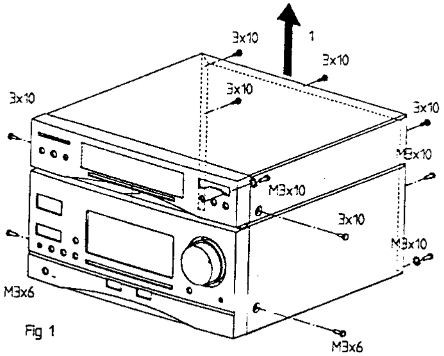
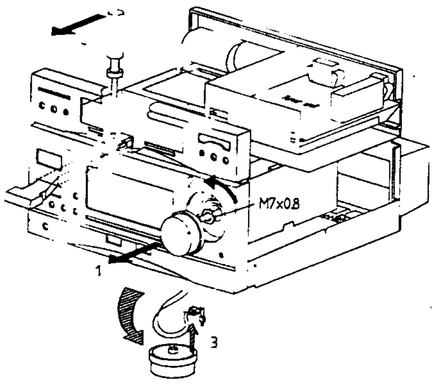

3x10
1
3x10
3x10
3x10
3x10
M3x10
M3x10
3x10
M3x10
M3x6
M3x6

Fig 1

1 Remove 2x M3X6 screws
6x 3X10 screws
2x M3X10 screws with ring
1x M3X10 screw see fig 1
2 Remove cover as shown in fig 1 arrow 1



3 Remove power rod as shown in fig 2 arrow 4
4 Remove volume knob as shown in fig 2 arrow 1
5 Remove volume led as shown in fig 2 arrow 3
(puch snaps a littel open)
6 Remove nut M7X0,8 as shown in fig 2 arrow 2

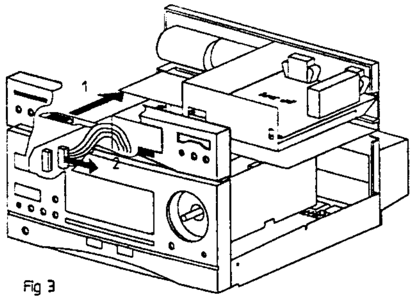


Fig 3

7 Remove lead assy as shown in fig 3 arrow 1 - 2

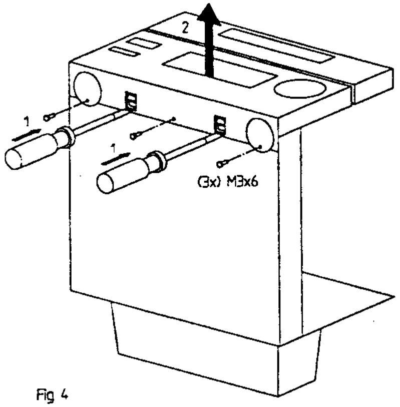


Fig 4

8 Remove 3x M3X6 screws see fig 4
9 Remove front as shown in fig 4 arrow 1 - 2

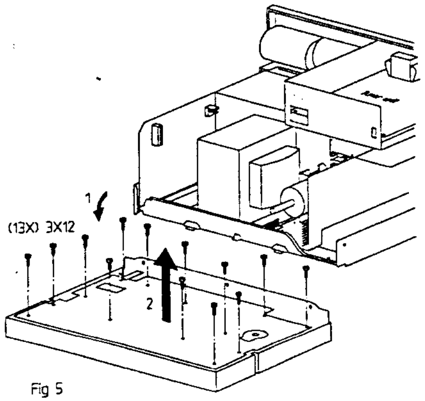


Fig 5

10 Tipp down front as shown in fig 5 arrow 1
11 Remove 13x 3X12 screws see fig 5
12 Remove PCB as shown in fig 5 arrow 2

DISMANTLING OF POWER PCB

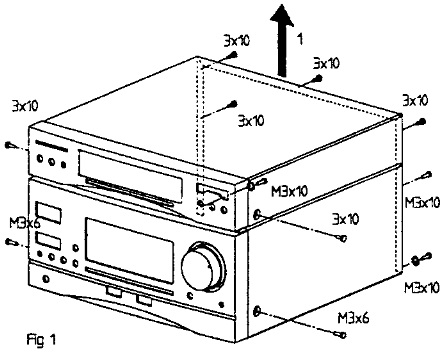

3x10
1
3x10
3x10
3x10
3x10
M3x10
3x10
M3x6
M3x10
M3x10
M3x6

Fig 1

1 Remove 2x M3X6 screws
6x 3X10 screws
2x M3X10 screws with ring
1x M3X10 screw see fig 1
2 Remove cover as shown in fig 1 arrow 1

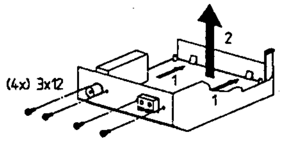


Fig 2

3 Remove 4x 3X12 screws see fig 2
4 Remove Tuner PCB as shown in fig 2 arrow 1-2

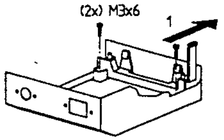


Fig 3

5 Remove 2x M3X6 screws see fig 3
6 Remove cover as shown in fig 3 arrow 1

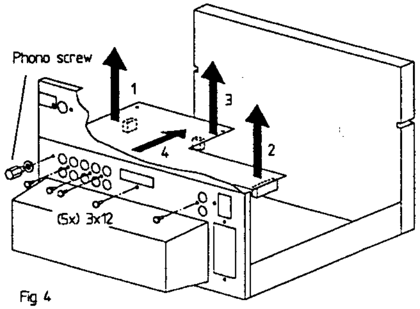

Phono screw
1
3
4
2
(5x) 3x12

Fig 4

7 Remove 5x 3X12 screws
1x Phono ground screw see fig 4
8 Remove PCB as shown in fig 4 arrow 1 - 2 - 3

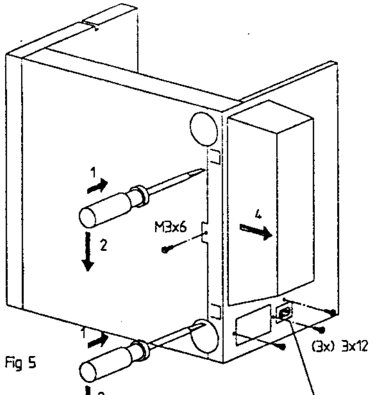


Fig 5

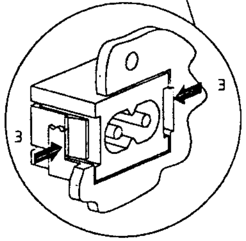


Fig 5a

9 Remove 1x M3X6 screw
3x 3X12 screws see fig 5
10 Remove backcover as shown in fig 5 arrow 1-2
To remove mainslet push snaps to inner side as shown fig 5a arrow 3
11 Remove backcover as shown in fig 5 arrow 4

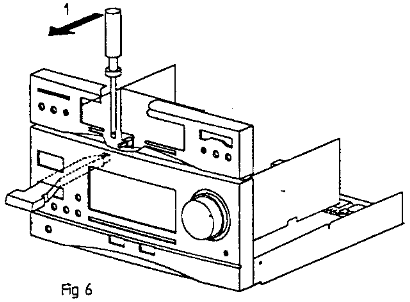


Fig 6

12 Remove power rod as shown in fig 6 arrow 1

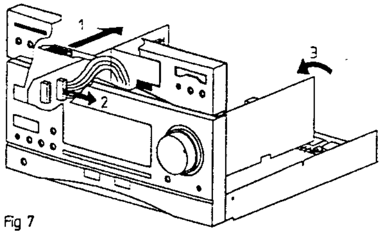


Fig 7

13 Remove lead assy as shown in fig 7 arrow 1 - 2
14 Make volume panel loose as shown in fig 7 arrow 3

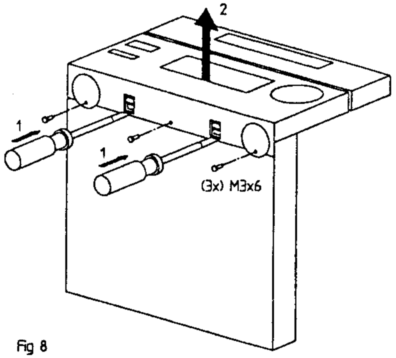


Fig 8

15 Remove 3x M3X6 screws see fig 8
16 Remove front as shown in fig 8 arrow 1 - 2

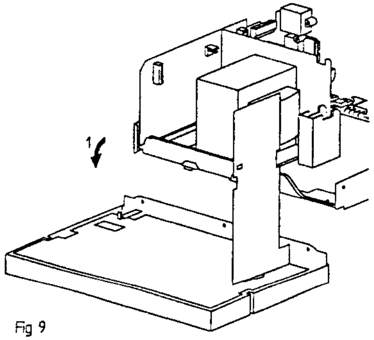


Fig 9

17 Tipp down front as show in fig 9 arrow 1

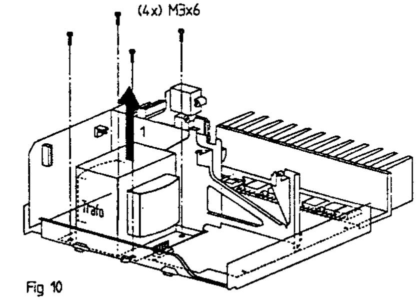


Fig 10

18 Remove 4x M3X6 screw see fig 10
19 Remove trafo as shown in fig 10 arrow 1

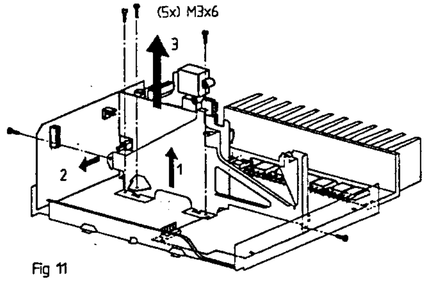


Fig 11

20 Remove 5x M3X6 screw see fig 11
21 Remove frame as shown in fig 11 arrow 1 - 2 - 3

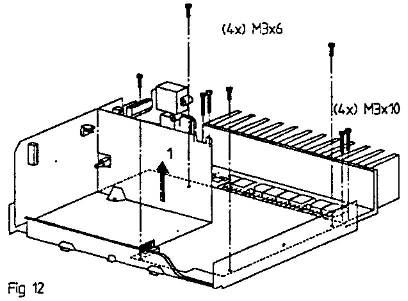


Fig 12

22 Remove 4x M3X10 screw
4x M3X6 screw see fig 12
23 Remove power PCB as shown in fig 12 arrow 1

SERVICE TEST PROGRAM

GENERAL

With this testprogramm the following parts can be checked.

1 Clock 8MHz
2 Clock 32kHZ
3 Key
4 Display
5 Balance
6 Volume
7 Spectrum
8 Eeprom clear
9 Eeprom
10 Source selection
11 Easylink

To go in test mode press **DBB** and the **PHONO/AUX** switch at the same time when aplifier is switched on.
The display shows for 2 sec.the loaded versions from the µ processor,and then SERVICE.
AUX are selected

1 CLOCK 8MHz TEST :

-Press the **SFC** button to start this testprogram.

A signal of 3.9kHz is put on the buzzer output (IC7883 pin 4 port13).The display shows 8MHz
-To leave this test press **SFC** again,the display shows now SERVICE

2 CLOCK 32kHz TEST :

-Press the **CLOCK SET** button to start this testprogram.

A signal of 8 kHz is put on the buzzer output (IC7883 pin 4 port13).The display shows 32kHz
-To leave this test press **CLOCK SET** again,the display shows now SERVICE

3 KEY TEST :

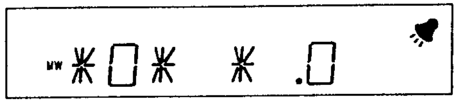
-Press the **FLAT** button to start this testprogram.

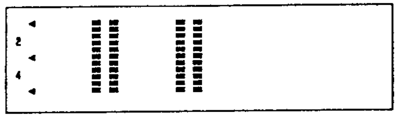
Press Button	Display Shows
SPC	KEY 17
PRESET	KEY 0E
PROGRAM	KEY 06
SELECT <	KEY 1E
SELECT >	KEY 1F
ADJUST DOWN	KEY 1B
ADJUST UP	KEY 1C
SURROUND	KEY 1A
DBB	KEY 19
DCC	KEY 07
PHONO/AUX	KEY 1D
NEWS	KEY 14
AUTOPROG	KEY 13
PROG	KEY 12
TIMER ON/OFF	KEY 15
DISPLAY	KEY 11
CLOCK SET	KEY 0D
NEWS/TIMER SET	KEY 0C
MONO	KEY 0A
CLEAR	KEY 09
BAND	KEY 04
TUNER <	KEY 03
TUNER >	KEY 02
PRESET DOWN	KEY 05
PRESET UP	KEY 01

-Press **FLAT** again, when the test is OK the dispay shows Key OK,otherwise Key ** .
-To leave this test press **FLAT** again,the display shows now SERVICE.

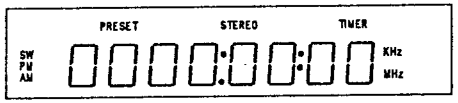
4 DISPLAY TEST :

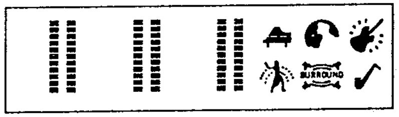
-Press the **PRESET** button to start this testprogram.
The dispay shows now DISPLAY.
--Press **ADJUST UP** button.The display shows



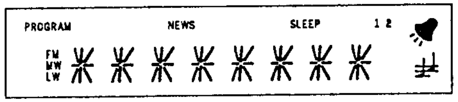


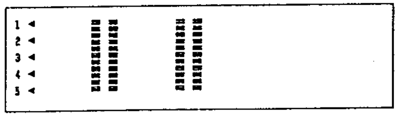
--Press again **ADJUST UP** button.the display shows now:





--Press again **ADJUST UP** button,the display shows now:

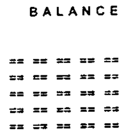




+ DBB Led light
--Press again **ADJUST UP** button,the display light complitly up.
-To leave this test press **PRESET** button again,the display shows now SERVICE

5 BALANCE TEST :

-Press the **PROGAM** button to start this testprogram.
The dispay shows now DISPLAY:



--Press **ADJUST UP** button,after 8 times pressing this button the display shows :see fig a.
--Press **ADJUST DOWN** button,after 8 times pressing this button the display shows :see fig b.

Fig a

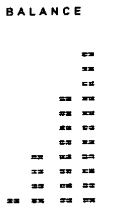
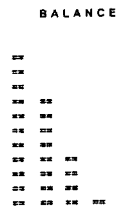


Fig b



-To leave this test press **PROGRAM** button again,the display shows now SERVICE

6 VOLUME TEST :

-Press the **SELECT <** button to start this testprogram.

The dispay shows now VOLUME.

--Press **ADJUST UP** button the volume turns clockwise
--Press **ADJUST DOWN** button the volume turns counter-clockwise
-To leave this test press **SELECT <** again,the display shows now SERVICE.

7 SPECTRUM TEST :

-Press the **SELECT >** button to start this testprogram.

The dispay shows now SPECTRUM.

--Press **ADJUST UP** button, one frequency band is select and this band is shows on display. SP - 6300 . Press again on the ADJUST UP button to scroll through this test.The display shows SP - 2500 SP - 1000
SP - 400 SP - 160
The first bar lights with ± 3mV on the aux input.
The 7 th bar lights with ± 20 mV on th aux input.
The 11 th bar lights with ± 100mV on the aux input

-To leave this test press **SELECT >** again,the display shows now SERVICE.

8 EEPROM CLEAR :

-Press the **ADJUST DOWN** button , the dispay shows CLR - PROM for 2 sec.With this test the eeprom is cleared automaticcally.

9 EEPROM TEST :

-Press the **ADJUST UP** button , the dispay shows PROM - OK for 2 sec. The eeprom is tested with an automatic write and read sequence.If a fault is found the dispay shows PROM - DEF .

10 SOURCE SELECTION TEST :

-Press the **DCC** button to start this testprogram.
The dispay shows now SOURCE.
--Press **ADJUST UP** button to select out the next source
TUNER TAPE CD PHONO AUX DCC

-To leave this test press **DCC** again,the display shows now SERVICE.

11 EASYLINK TEST :

-With this test the following are test:
--if both easylink IN and OUT are high
---if not the display shown **EAS-CON**
--the EasOut* port is put low and the EasIn* must follow
---if not the display shown **EAS-LOW**
--the EasOut* port is put High and the EasIn* must follow
---if not the display shown **EAS-HIGH**
*EasOut port=P50 pin75 IC7683
*EasIn port=P11 pin 2 IC7683

-Press the **TIMER ON/OFF** button to start this test:

The Easylink test is completed if the display shown after 2sec **EAS-OK**

SERVICE HINTS:

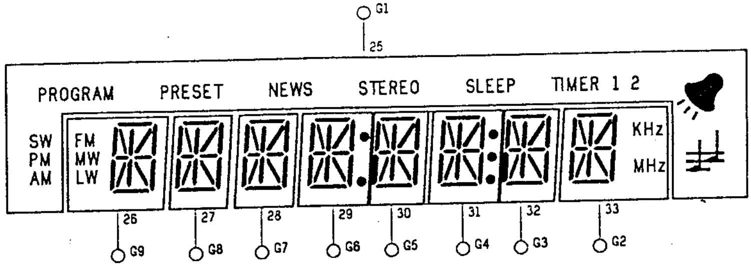
When the source selector panel is removed the power unit doesn't work amymore.
This can by helped in two ways.

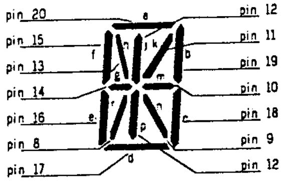
-Make a shortcircuit over diode 6282 (power unit)
or
-Connect the voltage +14V /massa/ -14V (plug 1280 power unit)back on the source selector panel(plug 1454 selector)

Trade Mode:

When through same reasen the trade mode is working it can be switched off as following
Switch power off.
Press DCC button and AUX/Phone button at the same time when you switch the power on.

GRID ASSIGMENT





PIN CONNECTION

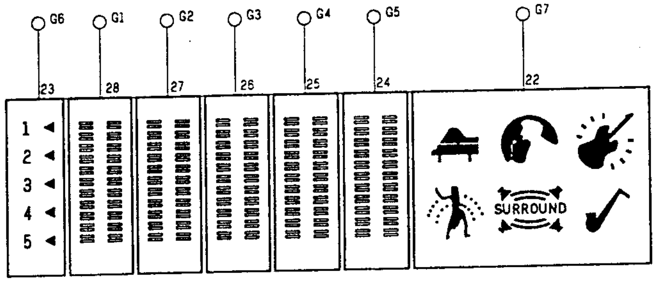
PIN NR	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
CONNECTION	F2	F2	NP	NP	NC	2G	3G	4G	5G	6G	7G	8G	9G	1G	NC	NC	NC	NC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	NP	NP	F1	F1

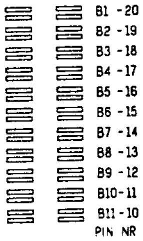
F1.F2-FILEMENT NP = NO PIN NC = NO CONNECTION 1G→9G = GRID

ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a	AM
P2	b	b	b	b	b	b	b	b	PM
P3	c	c	c	c	c	c	c	c	SW
P4	d	d	d	d	d	d	d	d	PROGRAM
P5	e	e	e	e	e	e	e	e	PRESET
P6	f	f	f	f	f	f	f	f	NEWS
P7	g	g	g	g	g	g	g	g	STEREO
P8	h	h	h	h	h	h	h	h	SLEEP
P9	j.p	j.p	j.p	j.p	j.p	j.p	j.p	j.p	TIMER
P10	k	k	k	k	k	k	k	k	1
P11	m	m	m	m	m	m	m	m	2
P12	n	n	n	n	n	n	n	n	🔔
P13	r	r	r	r	r	r	r	r	≢
P14	FM	-	-	:	-	⋮	-	kHz	-
P15	MW	-	-	-	-	⋮	-	MHz	-
P16	LW	-	-	-	-	-	-	-	-

GRID ASSIGMENT


G6
G1
G2
G3
G4
G5
G7
23
28
27
26
25
24
22
1
2
3
4
5
SURROUND


B1 -20
B2 -19
B3 -18
B4 -17
B5 -16
B6 -15
B7 -14
B8 -13
B9 -12
B10- 11
B11 - 10
PIN NR

PIN CONNECTION

PIN NR	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
CONNECTION	F1	F1	NP	G1	G2	G3	G4	G5	G6	G7	NC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	NC	NC	NC	NC	NC	NC	NP	F2	F2

F1.F2-FILEMENT NP = NO PIN NC = NO CONNECTION 1G → 7G = GRID

ANODE CONNECTION

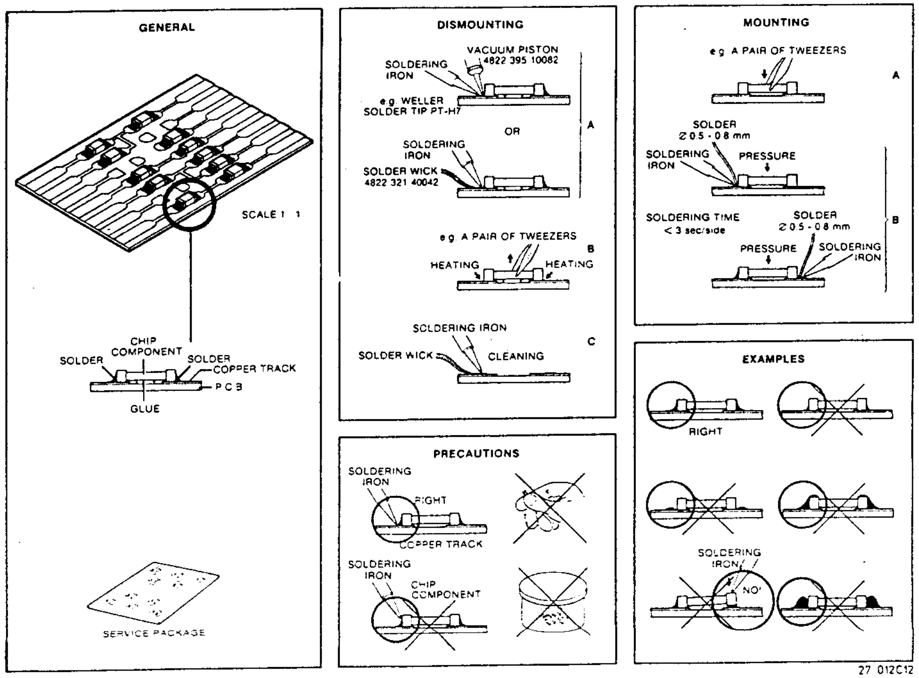
	1G	2G	3G	4G	5G	6G	7G
P1	B1	B1	B1	B1	B1	1	🎹
P2	B2	B2	B2	B2	B2	2	🎧
P3	B3	B3	B3	B3	B3	3	🎸
P4	B4	B4	B4	B4	B4	4	🎷
P5	B5	B5	B5	B5	B5	5	💃
P6	B6	B6	B6	B6	B6	◁ (1)	SURROUND
P7	B7	B7	B7	B7	B7	◁ (2)	-
P8	B8	B8	B8	B8	B8	◁ (3)	-
P9	B9	B9	B9	B9	B9	< (4)	-
P10	B10	B10	B10	B10	B10	◁ (5)	-
P11	B11	B11	B11	B11	B11	-	-

Quiescent Current

SK.... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSILLOSCOPE	D.C.METER INDICATOR
STAND - BY				L ch R 3285		L ch. DC 8 mV
				R ch. R 3284		R ch. DC 8 mV

- Check for good thermal contact between power transistor and heatsink.
- Mains Voltage 220V /00 240V /05 5%
- Ambient themperature =20° 5° and heatsink must be atambient temperature.

- Place the set on stand-by position.
- Trimpotmeter in clock wise position.
- The adjustment must be finished for both channels 20sec after power on.


GENERAL
SCALE 1 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P C B
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
SOLDERING IRON
SOLDER WICK 4822 321 40042
A
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
SOLDER WICK
CLEANING
C
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER ⌀ 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER ⌀ 0.5 - 0.8 mm
PRESSURE
SOLDERING IRON
B
EXAMPLES
RIGHT
SOLDERING IRON
NO!
27 012C12

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pieces de rechange identiques à celles spécifiées.

Pour votre sécurité, ces documents doivent etre utilisés par des specialistes agrées, seuls habilités à réparer votre appareil en panne.

WARNINGS

GB WARNING

All ICs and many other semi conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.When reparing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

NL WAARSCHUWING

Alle ICs en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD)
Onzorgvuldig behandelen tijden reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat U tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

D WARNUNG

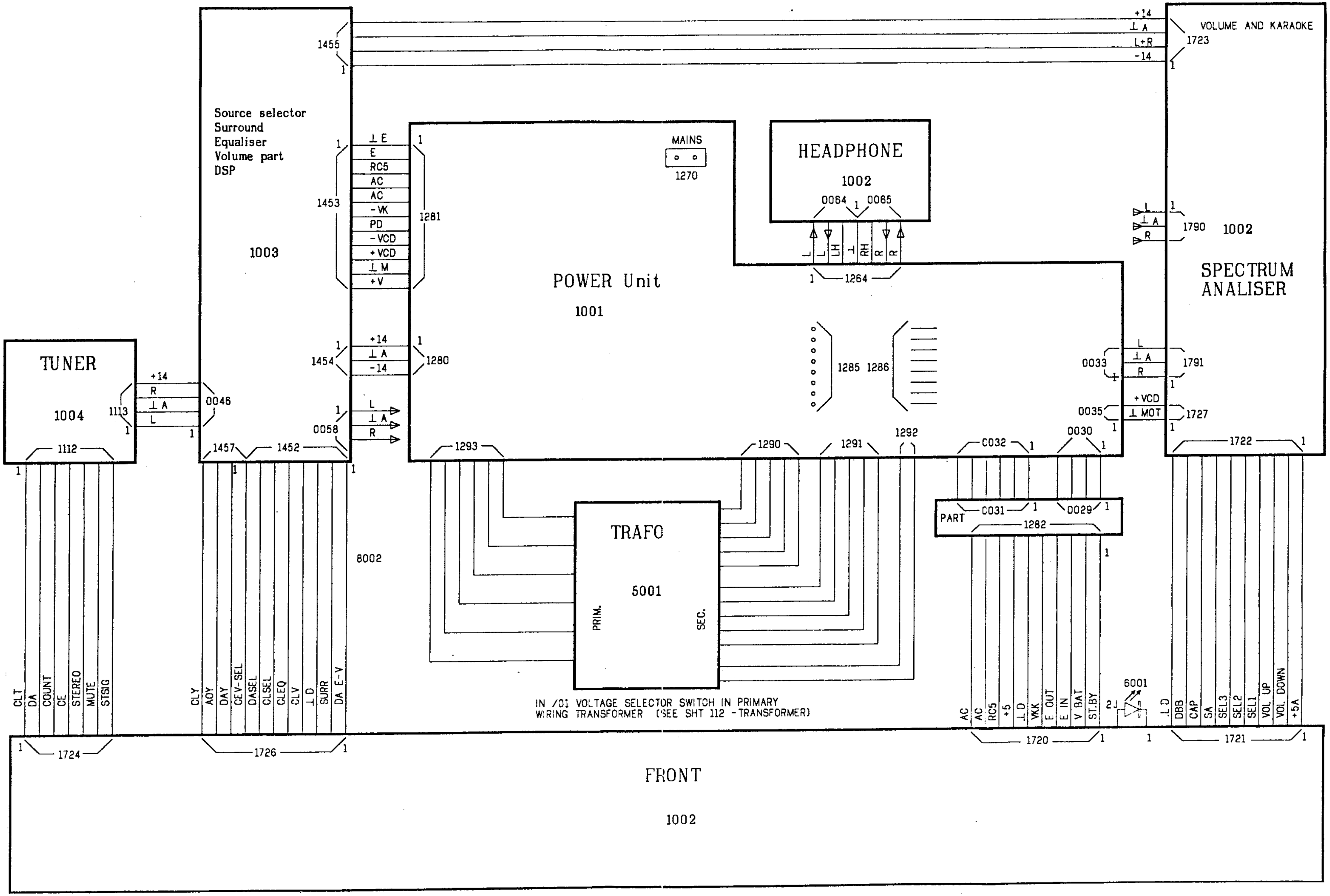
Alle ICs und viele andere Halbleiter sind empfindlich gegenüber electrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrair être considérablement écourtée par le fait qu'aucune precaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au meme potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller á ce que les composants ainsi que les outils que l'on utilise soient également á ce potentiel.

I AVERTIMENTO

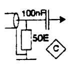
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche. (ESD)
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.


VOLUME AND KARAOKE
1723
+14
⊥ A
L+R
-14
1455
Source selector
Surround
Equaliser
Volume part
DSP
1003
1453
⊥ E
E
RC5
AC
AC
-VK
PD
-VCD
+VCD
⊥ M
+V
1281
MAINS
1270
HEADPHONE
1002
0064
0065
L
L
LH
⊥
RH
R
R
1264
1790
1002
SPECTRUM ANALISER
POWER Unit
1001
1454
+14
⊥ A
-14
1280
1285
1286
TUNER
1004
1113
1112
+14
R
⊥ A
L
0046
0058
L
⊥ A
R
1457
1452
0033
1791
L
⊥ A
R
0035
+VCD
⊥ MOT
1727
1722
1293
1290
1291
1292
C032
0030
PART
C031
0029
1282
TRAFO
5001
PRIM.
SEC.
8002
CLT
DA
COUNT
CE
STEREO
MUTE
STSIG
CLY
AOY
DAY
CEV-SEL
DASEL
CLSEL
CLEQ
CLV
⊥ D
SURR
DA E-V
AC
AC
RC5
+5
⊥ D
VKK
E OUT
E IN
V BAT
ST.BY
6001
2J
⊥ D
DBB
CAP
SA
SEL3
SEL2
SEL1
VOL UP
VOL DOWN
+5A
1724
1726
1720
1721
FRONT
1002

IN /01 VOLTAGE SELECTOR SWITCH IN PRIMARY WIRING TRANSFORMER (SEE SHT 112 - TRANSFORMER)

AP.3104-219-00710.SERV-MAN

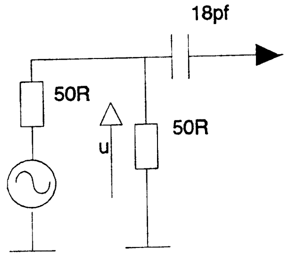
TUNER Adjustment table

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM /00/01/02/05 /10/17 87.5 - 108MHz			108 MHz	check	6	7....9V
			87.5MHz	check		1.3....2V
FM /14 65 - 108MHz			108 MHz	check		7...10,5V
			65 MHz	check		1,5....3V
FM /06 76 - 90MHz			90MHz	check		7....9V
			76MHz	check		1.3....2V
AM /01/06/17 530 - 1710kHz			1710kHz	5108		8.5V ± 0.1V
			530kHz	check		1V ± 0.3V
LW /00/02/05/10 /14 153 - 279kHz			279kHz	5108		8.5V ± 0.1V
			153kHz	check		1V ± 0.1V
MW /00/02/05/10 /14 522 - 1611kHz			1611kHz	2142		8.5V ± 0.1V
			522kHz	check		1.1V ± 0.3V
SW /00+SW 5,9 - 18,1MHz			18,1MHz	5123		8.5V ± 0.1V
			5,9MHz	check		1.1V ± 0.3V
SW /01+SW 3,9 - 12,1MHz			12,1MHz	5123		8.5V ± 0.1V
			3,9MHz	check		1.1V ± 0.3V
FM IF						
FM	98 MHz 1mVrf mod = 1kHz Δf = 75kHz 85 MHz /06	A	98MHz	5105	1 2	0V ± 20mV
STEREO CROSTALK						
FM	98 MHz 1mVrf 90% L + 9% pilot 85 MHz /06	A	98MHz	check	3	low < 1V
				3131	4	R min. out
SEARCH SENSITIVITY						
FM	98 MHz 15µV mod = 1kHz Δf = 75kHz 85 MHz /06	A	98MHz	3125	5	Switches just from High to Low
AM - IF						
MW	1494kHz Δf = 10kHz low as posible		1494kHz	5104	7	symmetrical and max height

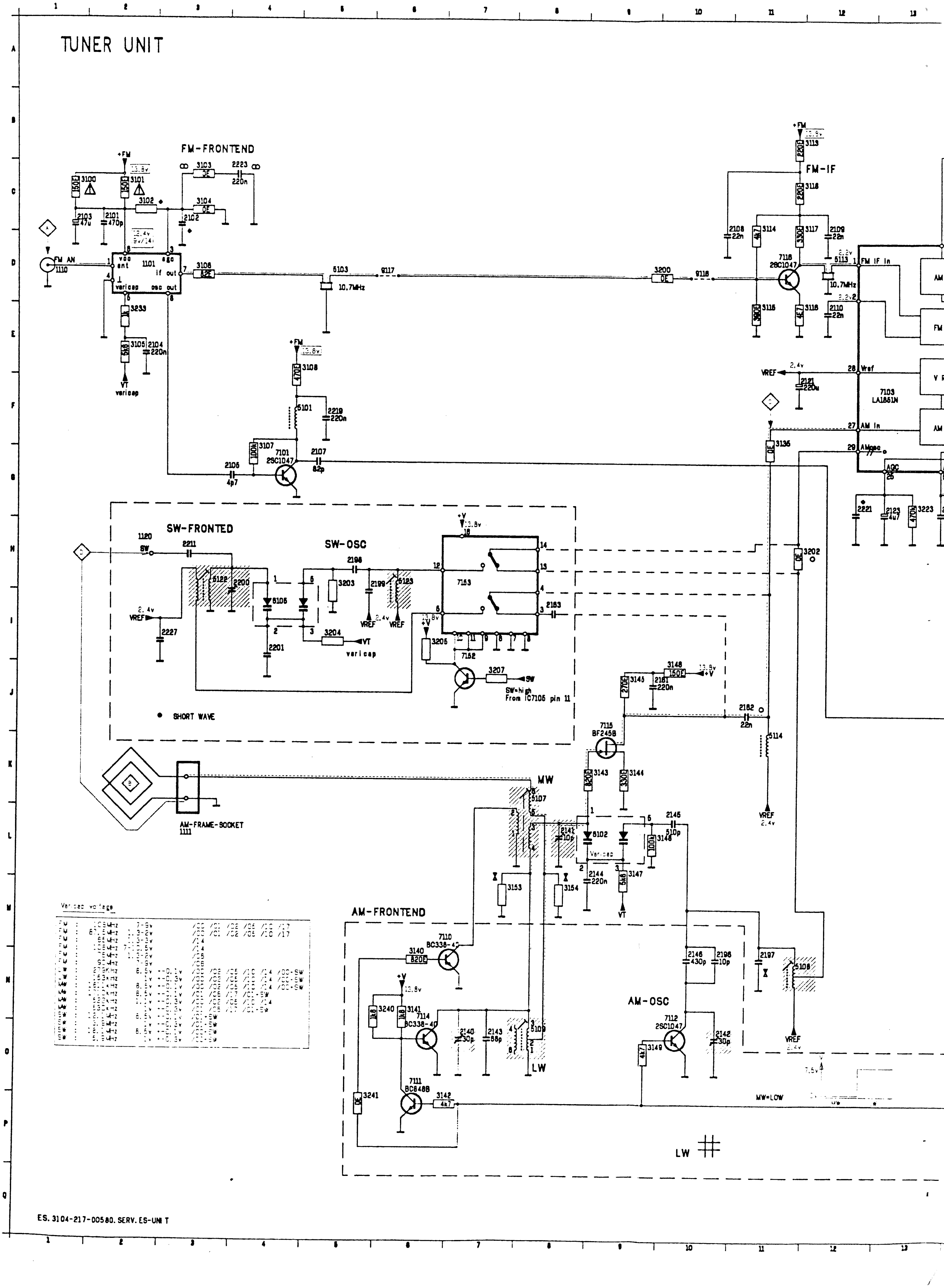
TUNER Adjustment table

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
AM - RF						
MW /00/02/05 /10/14 mod= 1 kHz 30% AM	558kHz	B	558kHz	5107	7	MAX ↕
	1494kHz		1494kHz	2141		
MW /01/06/17 mod= 1 kHz 30% AM	560kHz		560kHz	5107		MAX ↕
	1600kHz		1600kHz	2141		
LW mod= 1 kHz 30% AM	155kHz		155kHz	5109		MAX ↕
	270kHz		270kHz	2140		
SW /00+SW mod= 1 kHz 30% AM	5,9MHz	D	5,9MHz	5122		MAX ↕
	18,1MHz		18,1MHz	2200		
SW /00+SW mod= 1 kHz 30% AM	3,9MHz	*	3,9MHz	5122		MAX ↕
	12,1MHz		12,1MHz	2200		

* Sw measured via aerial capacitor 18pF



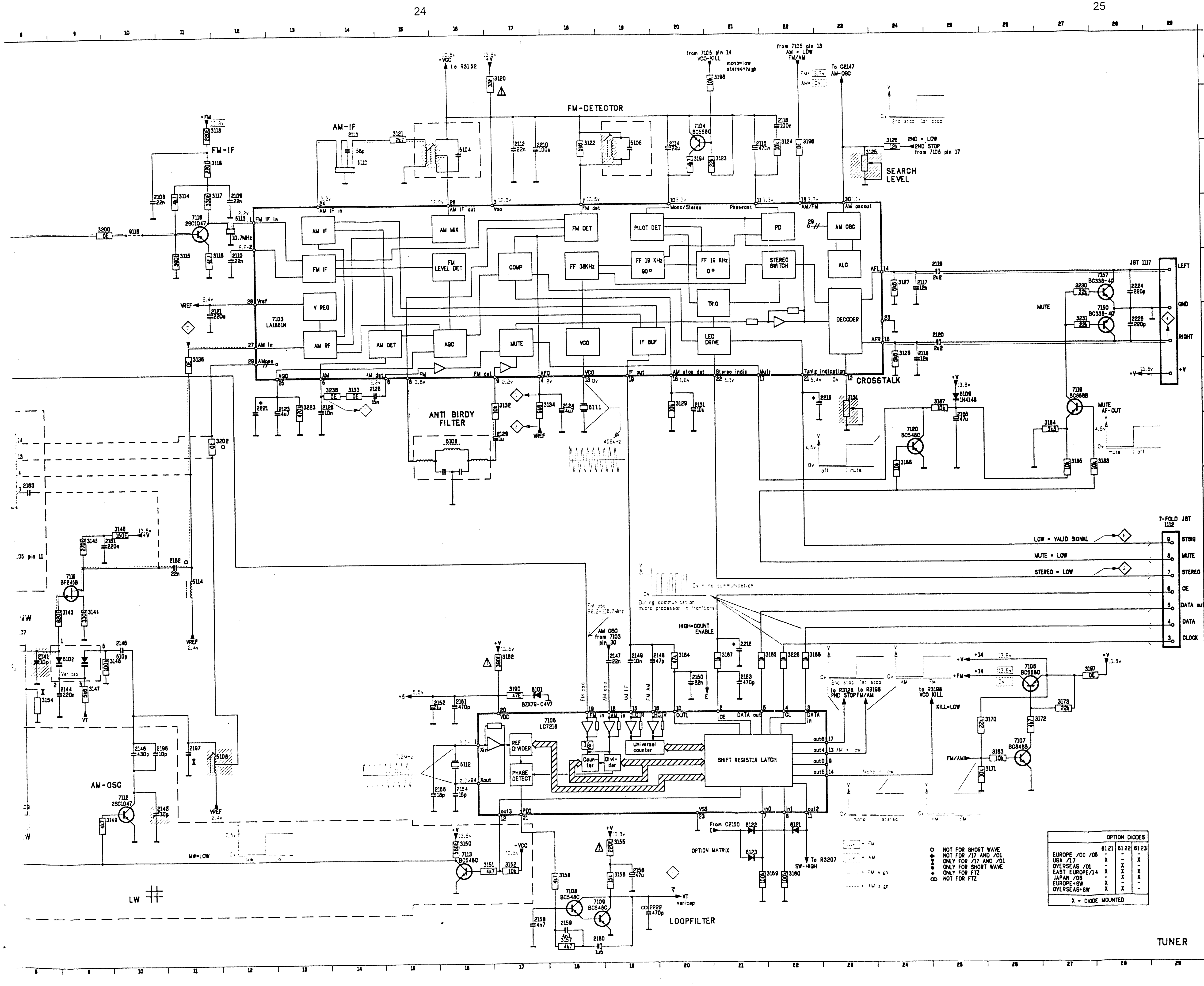
TUNER UNIT


FM-FRONTEND
FM AN
1110
1101
vcc
ant
agc
if out
varicap
osc out
+FM
13.8v
3100
3101
3102
3103
0E
2223
220n
3104
2102
2103
47u
2101
470p
12.4v
3106
82E
3233
1k
3105
5k6
2104
220n
VT
varicap
5103
9117
10,7MHz
3108
470E
5101
2219
220n
3107
100k
7101
2SC1047
2106
4p7
2107
82p
SW-FRONTED
1120
SW
2211
5122
2200
5106
2227
2.4v
VREF
2201
SW-OSC
2198
3203
2199
5123
3204
VT
varicap
7153
3205
7152
3207
SW=high
From IC7105 pin 11
2183
SHORT WAVE
FM-IF
3113
220E
3118
2108
22n
3114
4k7
3117
330E
2109
22n
7118
2SC1047
3200
0E
9118
5113
10,7MHz
3115
390E
3116
4E7
2110
22n
FM IF in
Vref
VREF
2121
220u
7103
LA1851N
AM in
AMosc
AGC
3136
0E
2221
2123
4u7
3223
470k
3202
0E
3148
150E
3145
270E
2181
220n
2182
22n
7115
BF245B
5114
3143
820E
3144
330E
MW
5107
AM-FRAME-SOCKET
1111
2141
10p
5102
Varicap
3146
100k
2145
510p
2144
220n
3147
5k6
3153
3154
AM-FRONTEND
7110
BC338-40
3140
820E
3240
1k8
3141
1k8
7114
BC338-40
2140
30p
2143
68p
5109
LW
7111
BC848B
3142
4k7
3241
0E
2146
430p
2196
10p
2197
5108
AM-OSC
7112
2SC1047
3149
4k7
2142
30p
MW=LOW
LW

Varicap voltage

FM	:	108MHz	7-9v		/00 /01 /02 /05 /10 /17
FM	:	87.5MHz	1.3-2v		/00 /01 /02 /05 /10 /17
FM	:	65MHz	1.3-3v		/14
FM	:	108MHz	7-10.5v		/14
FM	:	76MHz	1.3-2v		/05
FM	:	90MHz	7-9v		/08
LW	:	278KHz	8.5v	+-0.1v	/00 /02 /05 /10 /14 /00-SW
LW	:	153kHz	1v	+-0.3v	/00 /02 /05 /10 /14 /00-SW
MW	:	1611kHz	8.5v	+-0.1v	/00 /02 /05 /10 /14 /00-SW
MW	:	1710kHz	8.5v	+-0.1v	/01 /08 /17 /01-SW
MW	:	522kHz	1.1v	+-0.3v	/00 /02 /05 /10 /14
MW	:	530kHz	1v	+-0.3v	/01 /08 /17 /01-SW
SW	:	12.1MHz	8.5v	+-0.1v	/01-SW
SW	:	5.9MHz	1v	+-0.3v	/01-SW
SW	:	18.1MHz	8.5v	+-0.1v	/00-SW
SW	:	5.9MHz	1v	+-0.3v	/00-SW

ES. 3104-217-00580. SERV. ES-UNIT


24
25
FM-DETECTOR
AM-IF
FM-IF
SEARCH LEVEL
7103 LA1851N
AM IF
AM MIX
FM DET
PILOT DET
PD
AM OSC
FM IF
FM LEVEL DET
COMP
FF 38KHz
FF 19 KHz 90°
FF 19 KHz 0°
STEREO SWITCH
ALC
V REG
TRIG
DECODER
AM RF
AM DET
AGC
MUTE
VCO
IF BUF
LED DRIVE
CROSSTALK
ANTI BIRDY FILTER
7105 LC7218
REF DIVIDER
PHASE DETECT
Counter
Divider
Universal counter
SHIFT REGISTER LATCH
AM-OSC
LOOPFILTER
OPTION MATRIX
MUTE AF-OUT
J8T 1117
LEFT
GND
RIGHT
+V
7-FOLD J8T 1112
STSIG
MUTE
STEREO
CE
DATA out
DATA
CLOCK
LOW = VALID SIGNAL
MUTE = LOW
STEREO = LOW
HIGH=COUNT ENABLE
from 7105 pin 14 VCO-KILL
from 7105 pin 13 AM = LOW FM/AM
To C2147 AM-OSC
2ND = LOW 2ND STOP from 7105 pin 17
FM osc 98.2-128.7MHz
AM OSC from 7103 pin 30
During communication micro processor ↔ frontpanel
0v = no communication
to R3126 2ND STOP
to R3198 FM/AM
to R3198 VCO KILL
KILL=LOW
To R3207 SW-HIGH
From C2150
MW=LOW
LW
VT varicap
VREF
10.7MHz
456kHz
7.2MHz

○ NOT FOR SHORT WAVE
✱ NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01
● ONLY FOR SHORT WAVE
◆ ONLY FOR FTZ
ꝏ NOT FOR FTZ

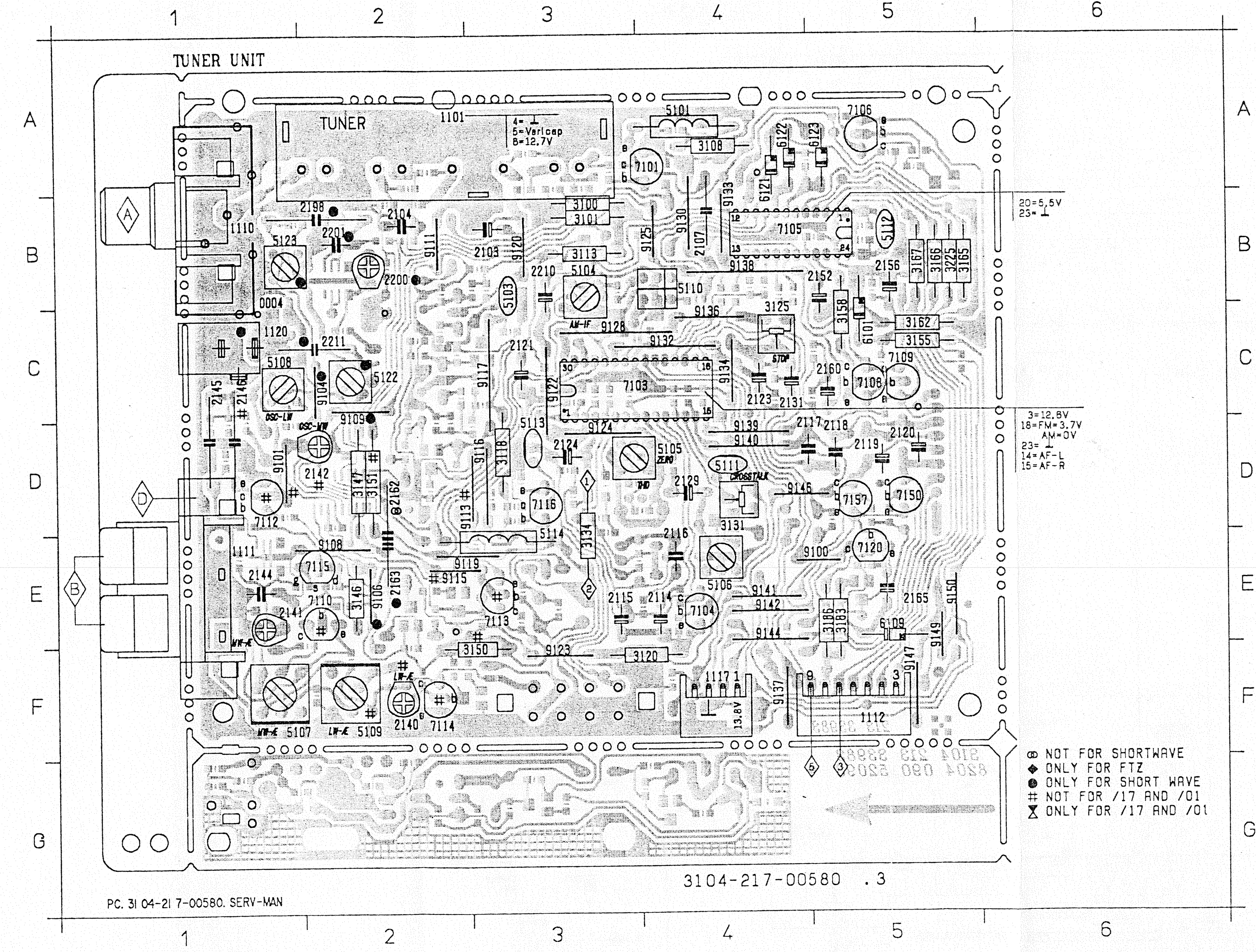
OPTION DIODES	6121	6122	6123
EUROPE /00 /05	-	-	-
USA /17	X	-	X
OVERSEAS /01	-	X	-
EAST EUROPE/14	X	X	X
JAPAN /06	-	X	X
EUROPE+SW	X	-	-
OVERSEAS+SW	X	X	-

X = DIODE MOUNTED

TUNER

1101	O 2	7101	O 4
2101	C 2	7103	F13
2102	C 3	7104	B20
2103	C 1	7105	M18
2104	E 2	7106	L28
2105	O 4	7107	M26
2107	G 5	7108	P18
2108	C10	7109	P18
2109	C12	7110	M 7
2110	D12	7111	O 8
2112	B17	7112	N10
2113	B14	7113	O18
2114	C20	7114	N 6
2115	C21	7115	J 9
2116	B22	7116	D11
2117	E24	7119	O27
2118	F24	7120	H24
2119	E25	7150	F28
2120	F25	7152	I 7
2121	F11	7153	H 7
2123	G13	7157	E28
2124	O18	9116	D10
2125	O13	9117	D 6
2126	O14		
2129	H17		
2131	O20		
2140	O 7		
2141	L 8		
2142	O10		
2143	O 7		
2144	L 8		
2145	L10		
2146	M10		
2147	L18		
2148	L19		
2149	L19		
2150	L20		
2151	M16		
2152	M15		
2153	L21		
2154	N16		
2155	N15		
2156	P19		
2158	Q17		
2159	Q18		
2160	Q18		
2161	J 9		
2162	J11		
2163	I 8		
2165	H25		
2196	M10		
2197	M11		
2198	H 5		
2199	H 5		
2200	H 3		
2201	I 4		
2210	C17		
2211	H 3		
2215	O22		
2216	L21		
2219	F 5		
2221	O12		
2222	P19		
2223	C 4		
2224	E28		
2225	F28		
2227	I 2		
3100	C 1		
3101	C 2		
3102	C 2		
3103	C 3		
3104	C 3		
3105	E 2		
3106	D 3		
3107	F 4		
3108	E 4		
3113	B11		
3114	C11		
3115	D11		
3116	D11		
3117	C11		
3118	C11		
3120	A17		
3121	B15		
3122	B18		
3123	C21		
3124	B22		
3126	B24		
3127	E24		
3128	F24		
3129	G20		
3132	G17		
3133	G14		
3134	G17		
3135	F11		
3140	M 6		
3141	N 6		
3142	O 7		
3143	K 8		
3144	K 9		
3145	J 9		
3146	I10		
3147	L 9		
3148	L 9		
3149	O 9		
3150	O16		
3151	P16		
3152	P17		
3153	M 7		
3154	M 8		
3155	O18		
3156	P19		
3157	Q18		
3158	P18		
3159	P21		
3160	P22		
3162	L17		
3163	N26		
3164	L20		
3165	L21		
3166	L22		
3167	L21		
3170	M25		
3171	N25		
3172	M26		
3173	M27		
3183	H27		
3184	H27		
3185	H27		
3186	H24		
3187	G25		
3190	L17		
3194	C20		
3196	B22		
3197	L27		
3198	A21		
3200	D10		
3202	H11		
3203	H 5		
3204	I 5		
3205	I 6		
3207	J 7		
3223	G13		
3225	L22		
3230	E27		
3231	F27		
3233	E 2		
3236	G14		
3240	N 5		
3241	O 5		
5104	C18		
5105	B19		
5106	H16		
5107	K 8		
5111	G18		
5112	N16		
6101	L17		
6102	L 8		
6105	I 4		
6109	G25		
6121	O22		
6122	O21		
6123	O21		

0004	B1	2116	E4	2142	D2	2201	B2	3146	E2	3225	B5	5113	D3	7105	B4	7157	D5	9119	E2	9137	F4
1101	A2	2117	D5	2144	E1	2210	B3	3147	D2	5101	A4	5114	E3	7106	A5	9100	E5	9120	B3	9138	B4
1110	B1	2118	D5	2145	C1	2211	C2	3150	F3	5103	B3	5122	C2	7108	C5	9101	D1	9122	C3	9139	D4
1111	E1	2119	D5	2146	C1	3100	B3	3151	D2	5104	B3	5123	B1	7109	C5	9104	C2	9123	F3	9140	D4
1112	F5	2120	D5	2152	B5	3101	B3	3155	C5	5105	D4	6101	C5	7110	E2	9106	E2	9124	D3	9141	E4
1117	F4	2121	C3	2156	B5	3108	A4	3158	C5	5106	E4	6109	E5	7112	D1	9108	E2	9125	B4	9142	E4
1120	C1	2123	C4	2160	C5	3113	B3	3162	C5	5107	F1	6121	A4	7113	E3	9109	D2	9128	C3	9144	E4
2103	B3	2124	D3	2162	D2	3118	D3	3165	B5	5108	C1	6122	A4	7114	F2	9111	B2	9130	B4	9146	D4
2104	B2	2129	D4	2163	E2	3120	F4	3166	B5	5109	F2	6123	A5	7115	E2	9113	D2	9132	C4	9147	F5
2107	B4	2131	C4	2165	E5	3125	C4	3167	B5	5110	B4	7101	A4	7116	D3	9115	E2	9133	B4	9149	E5
2114	E4	2140	F2	2198	B2	3131	D4	3183	E5	5111	D4	7103	C3	7120	E5	9116	D3	9134	C4	9150	E5
2115	E3	2141	E1	2200	B2	3134	E3	3186	E5	5112	B5	7104	E4	7150	D5	9117	C3	9136	C4		

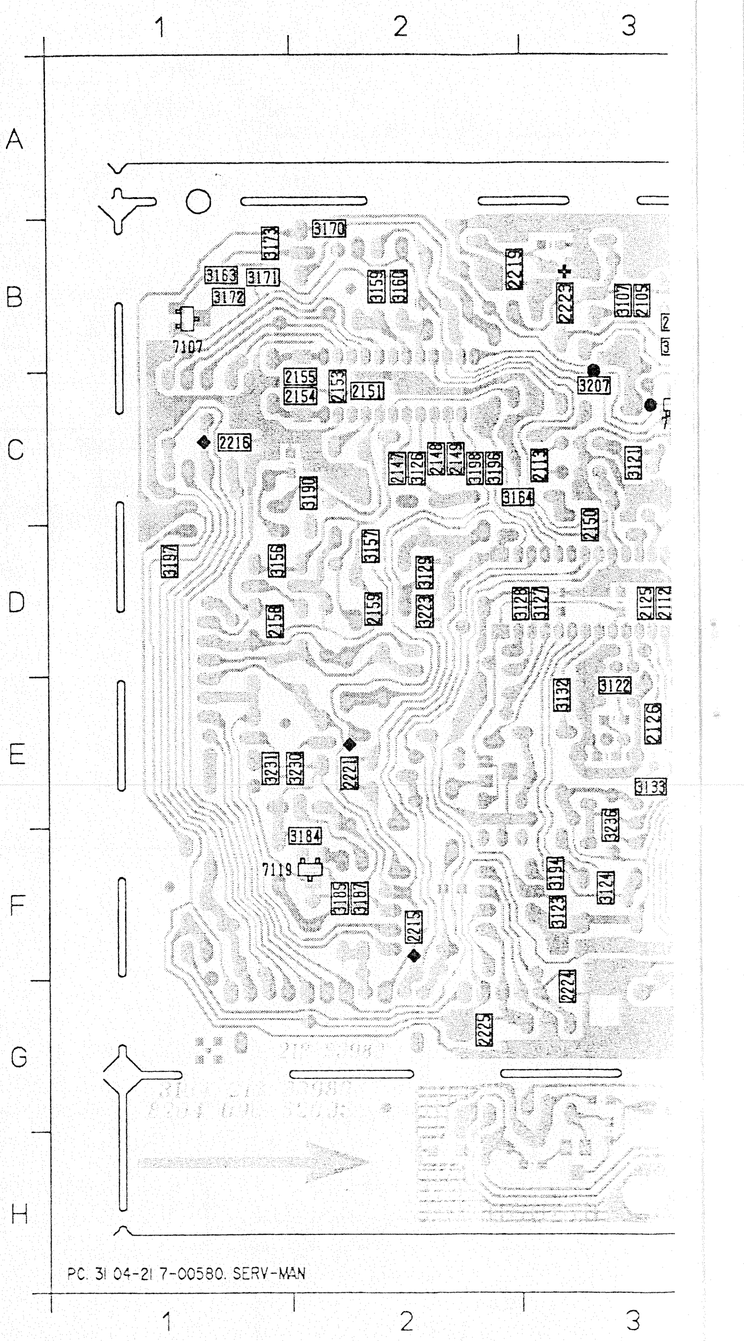

1
2
3
4
5
6
A
B
C
D
E
F
G
TUNER UNIT
TUNER
1101
4=⊥
5=Varicap
8=12,7V
5101
3108
7106
6122
6123
7101
6121
3100
3101
3113
5104
5110
9136
3125
3158
6101
3162
3155
7109
7105
2152
2156
3167
3166
3225
3165
1110
5123
2201
2198
2104
2200
9111
2103
9120
2210
5103
9125
9130
2107
9133
9138
0004
1120
2211
5108
5122
2145
2146
9104
9109
9128
9132
2121
9117
9122
7103
9134
2123
2131
2160
7108
2117
2118
2119
2120
9139
9140
9124
5105
5111
5113
9116
3118
2124
2129
3131
9146
7157
7150
9101
2142
3147
3151
2162
9113
7112
7116
5114
3134
2116
7120
9100
1111
9108
7115
2144
3146
9106
2163
9115
9119
7113
2141
7110
3150
9123
3120
2115
2114
7104
5106
9141
9142
9144
3186
3183
6109
2165
9149
9150
9147
9137
1117
13.8V
1112
5107
5109
2140
7114
9
3
OSC-LW
OSC-MW
MW-E
LW-E
AM-IF
STOP
CROSSTALK
ZERO
THD
3104-217-00580 .3
PC. 31 04-21 7-00580. SERV-MAN

20=5,5V
23=⊥

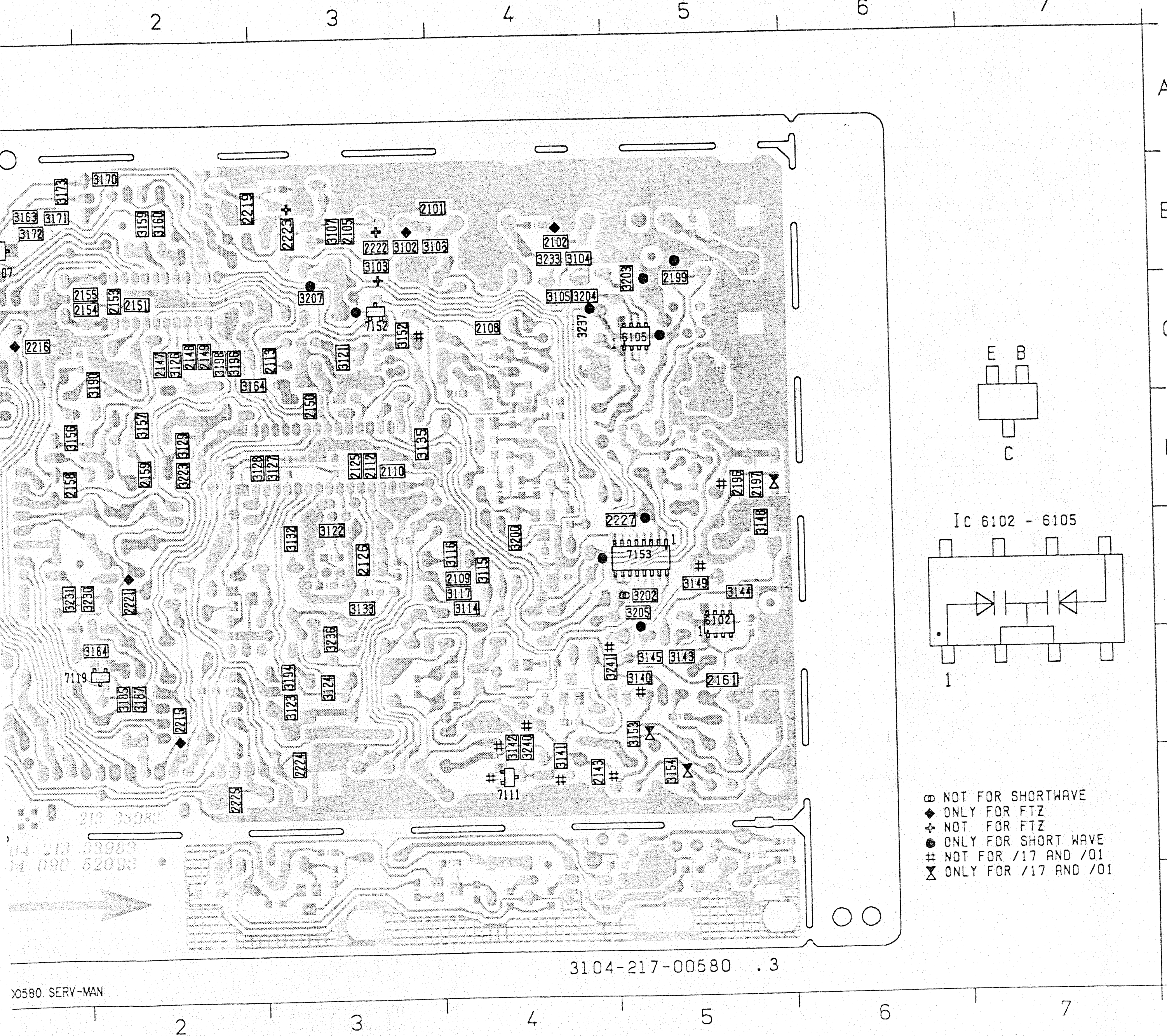
3=12,8V
18=FM=3,7V
AM=0V
23=⊥
14=AF-L
15=AF-R

ↀ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
● ONLY FOR SHORT WAVE
NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

2101	B4	2147	C2	2196	D5	2227	E5	3121	C
2102	B4	2148	C2	2197	D5	3102	B3	3122	E
2105	B3	2149	C2	2199	C5	3103	B3	3123	F
2108	C4	2150	D3	2215	F2	3104	B4	3124	F
2109	E4	2151	C2	2216	C1	3105	C4	3126	C
2110	D3	2153	C2	2219	B2	3106	B4	3127	D
2112	D3	2154	C2	2221	E2	3107	B3	3128	D
2113	C3	2155	C2	2222	B3	3114	E4	3129	D
2125	D3	2158	D1	2223	B3	3115	E4	3132	E
2128	E3	2159	D2	2224	G3	3116	E4	3133	E
2143	G4	2161	F5	2225	G2	3117	E4	3135	D


1
2
3
A
B
C
D
E
F
G
H
3170
3173
3163
3171
3172
7107
2219
2223
3207
2155
2154
2153
2151
2216
3190
2147
2148
2149
2158
2159
2113
3164
2150
3121
3156
3157
3128
3127
2125
2196
2229
3223
2197
2112
3132
3122
2126
3231
3230
2221
3133
3184
7119
3185
3186
2215
3123
3124
2224
2225
PC. 31 04-21 7-00580. SERV-MAN

47	C2
48	C2
49	C2
50	D3
51	C2
53	C2
54	C2
55	C2
58	D1
59	D2
61	F5
2196	D5
2197	D5
2199	C5
2215	F2
2216	C1
2219	B2
2221	E2
2222	B3
2223	B3
2224	G3
2225	G2
2227	E5
3102	B3
3103	B3
3104	B4
3105	C4
3106	B4
3107	B3
3114	E4
3115	E4
3116	E4
3117	E4
3121	C3
3122	E3
3123	F3
3124	F3
3126	C2
3127	D3
3128	D3
3129	D2
3132	E3
3133	E3
3135	D3
3140	F5
3141	G4
3142	F4
3143	F5
3144	E5
3145	F5
3148	E5
3149	E5
3152	C3
3153	F5
3154	G5
3156	D1
3157	D2
3159	B2
3160	B2
3163	B1
3164	C2
3170	B2
3171	B1
3172	B1
3173	B1
3184	F2
3185	F2
3187	F2
3190	C2
3194	F3
3196	C2
3197	D1
3198	C2
3200	E4
3202	E5
3203	B5
3204	C4
3205	E5
3207	C3
3223	D2
3230	E2
3231	E1
3233	B4
3236	E3
3237	C4
3240	F4
3241	F4
6102	E5
6105	C5
7107	B1
7111	G4
7119	F1
7152	C3
7153	E5

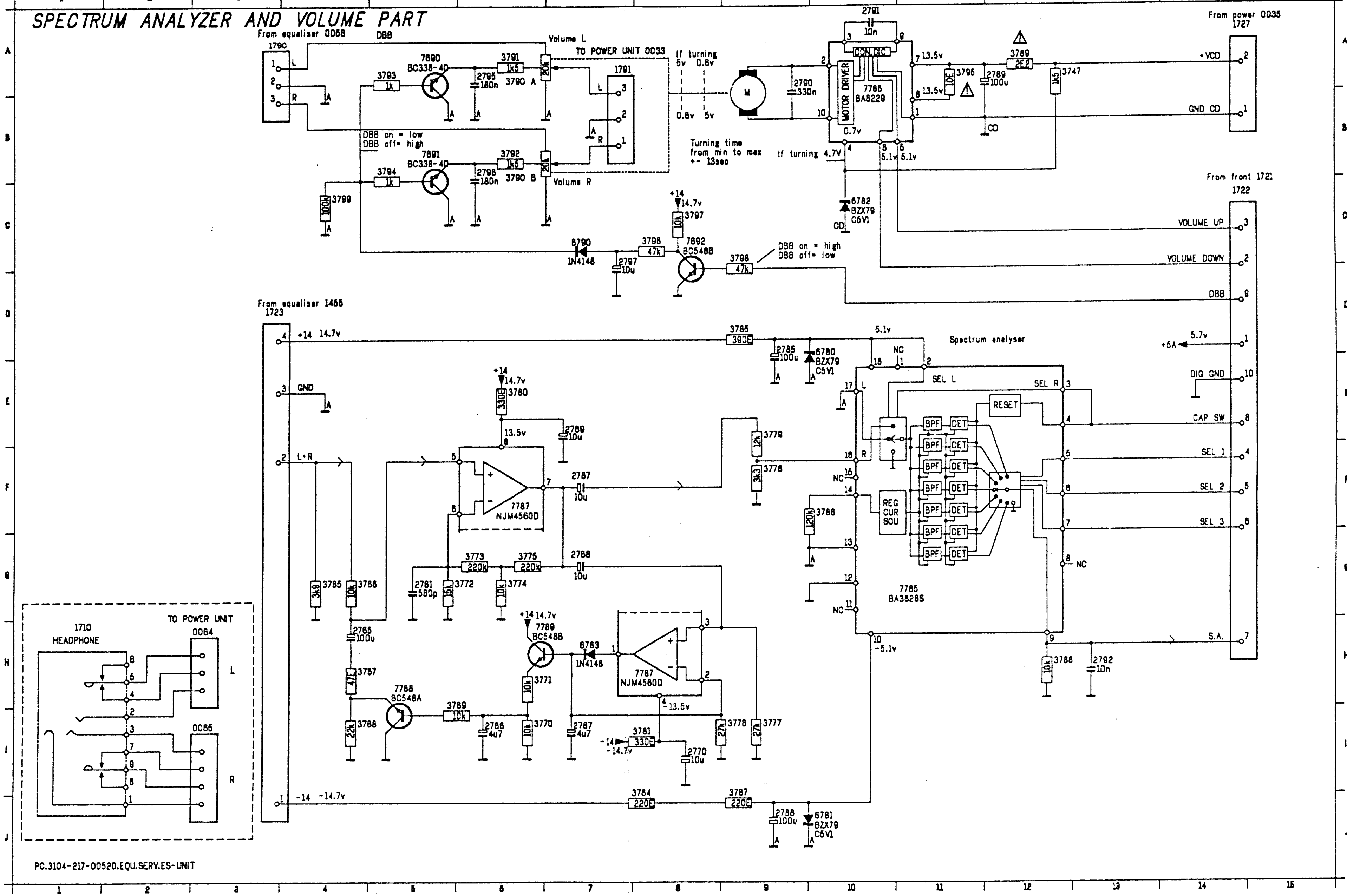


ꝏ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
✣ NOT FOR FTZ
● ONLY FOR SHORT WAVE
NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

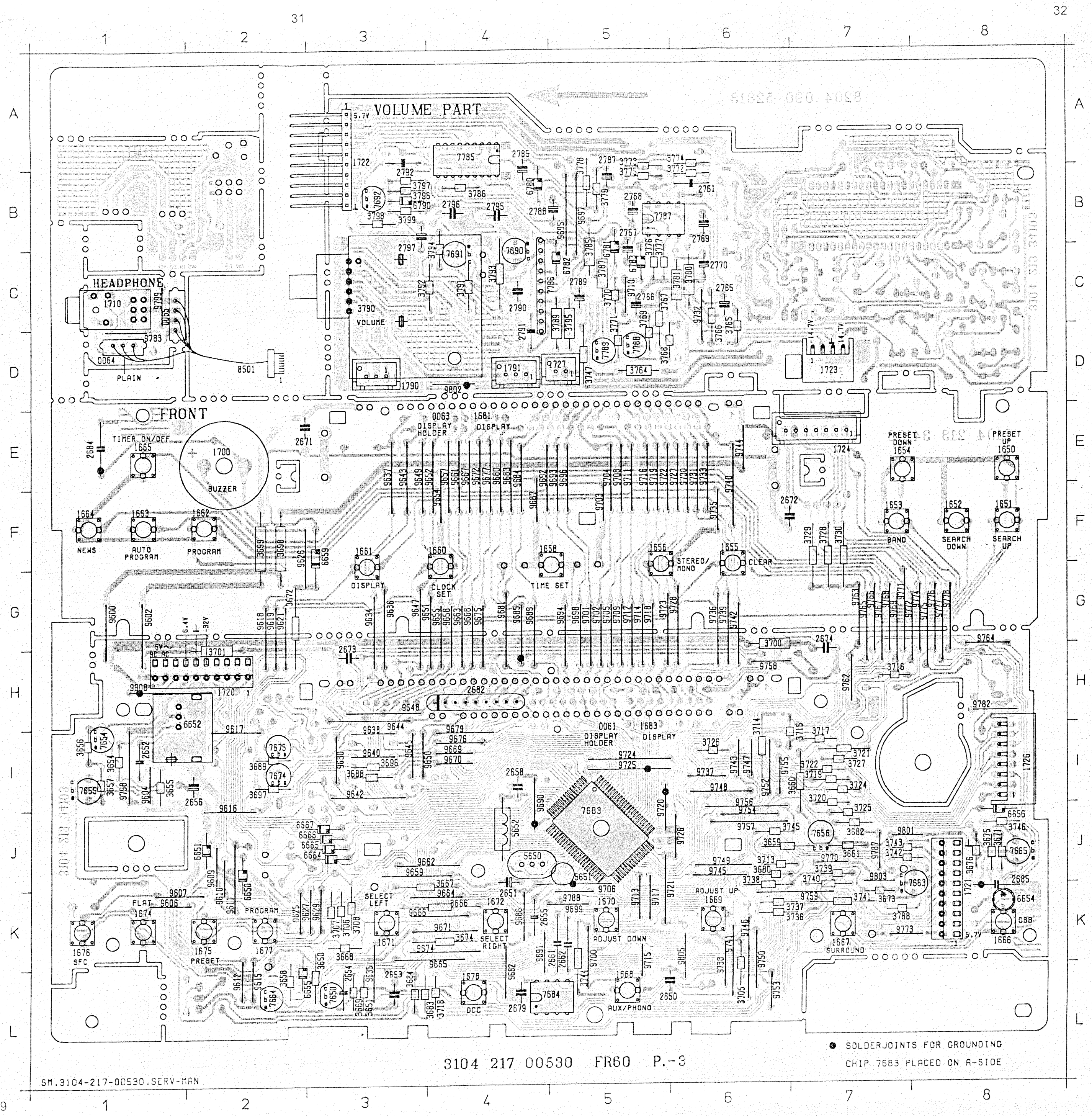
00580. SERV-MAN

0064	H 3
0065	I 3
1710	H 1
1722	C14
1723	D 3
1727	A14
1790	A 3
1791	A 7
2761	G 5
2765	H 4
2766	I 6
2767	I 7
2768	G 7
2769	E 7
2770	I 8
2785	D 9
2787	F 7
2788	J 9
2789	A11
2790	A 9
2791	A10
2792	H13
2795	A 6
2796	B 6
2797	C 7
3747	A12
3764	I 8
3765	G 4
3766	G 4
3767	H 4
3768	I 4
3769	H 6
3770	I 6
3771	H 6
3772	G 5
3773	G 6
3774	G 6
3775	G 6
3776	I 8
3777	I 9
3778	F 9
3779	E 9
3780	E 6
3781	I 8
3785	D 9
3786	F 9
3787	I 9
3788	H12
3789	A12
3790	B 7
3790	A 7
3791	A 6
3792	B 6
3793	A 5
3794	B 5
3795	A11
3796	C 8
3797	C 8
3798	C 9
3799	C 4
6780	D 9
6781	J 9
6782	C10
6783	H 7
6790	C 7
7690	A 5
7691	B 5
7692	C 8
7785	G11
7786	A10
7787	F 6
7787	H 8
7788	H 5
7789	H 7

SPECTRUM ANALYZER AND VOLUME PART


From equaliser 0068
DBB
1790
L
R
Volume L
TO POWER UNIT 0033
7690
BC338-40
3793
1k
3791
1k5
2795
180n
3790 A
20k
1791
DBB on = low
DBB off= high
7691
BC338-40
3794
1k
3792
1k5
2796
180n
3790 B
Volume R
3799
100k
If turning
5v 0.6v
0.6v 5v
M
2790
330n
2791
10n
CON.CIC
MOTOR DRIVER
7786
BA6229
0.7v
Turning time
from min to max
+- 13sec
If turning 4.7V
6.1v 6.1v
13.5v
13.5v
3795
10E
2789
100u
3789
2E2
3747
1k5
CD
6782
BZX79
C5V1
+14
14.7v
3797
10k
6790
1N4148
3796
47k
2797
10u
7692
BC548B
3798
47k
DBB on = high
DBB off= low
From power 0035
1727
+VCD
GND CD
From front 1721
1722
VOLUME UP
VOLUME DOWN
DBB
+5A
5.7v
DIG GND
CAP SW
SEL 1
SEL 2
SEL 3
S.A.
From equaliser 1466
1723
+14 14.7v
GND
L+R
-14 -14.7v
3785
390E
2785
100u
6780
BZX79
C5V1
5.1v
NC
Spectrum analyser
SEL L
SEL R
RESET
BPF
DET
REG
CUR
SOU
3786
120k
7785
BA3828S
-5.1v
3788
10k
2792
10n
3780
330E
2789
10u
13.5v
7787
NJM4560D
2787
10u
3779
12k
3778
3k3
3773
220k
3775
220k
2788
10u
2781
560p
3772
15k
3774
10k
3765
3k9
3766
10k
2765
100u
3767
47E
7788
BC548A
3769
10k
3768
22k
2766
4u7
7789
BC548B
3771
10k
3770
10k
6783
1N4148
2767
4u7
-13.6v
3781
330E
-14
-14.7v
2770
10u
3776
27k
3777
27k
3784
220E
3787
220E
2788
100u
6781
BZX79
C5V1
1710
HEADPHONE
TO POWER UNIT
0084
0085
L
R

PC.3104-217-00520.EQU.SERV.ES-UNIT


31
32
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
VOLUME PART
5.7V
VOLUME
HEADPHONE
PLAIN
FRONT
TIMER ON/OFF
BUZZER
NEWS
AUTO PROGRAM
PROGRAM
DISPLAY HOLDER
DISPLAY
CLOCK SET
TIME SET
STEREO/MONO
CLEAR
PRESET DOWN
PRESET UP
BAND
SEARCH DOWN
SEARCH UP
SFC
PRESET
FLAT
SELECT LEFT
SELECT RIGHT
DCC
AUX/PHONO
ADJUST UP
ADJUST DOWN
SURROUND
DBB
3104 217 00530 FR60 P.-3

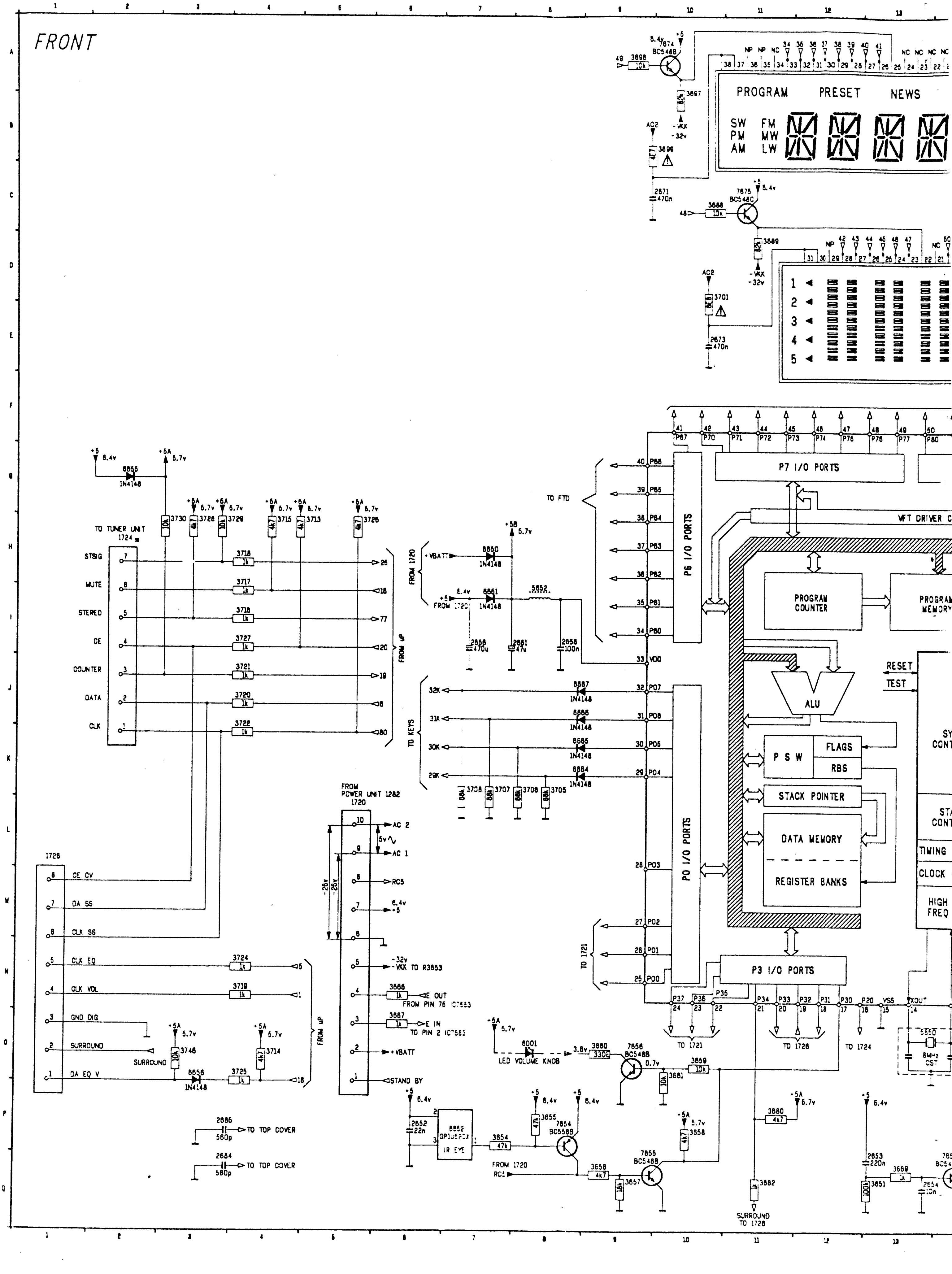
● SOLDERJOINTS FOR GROUNDING

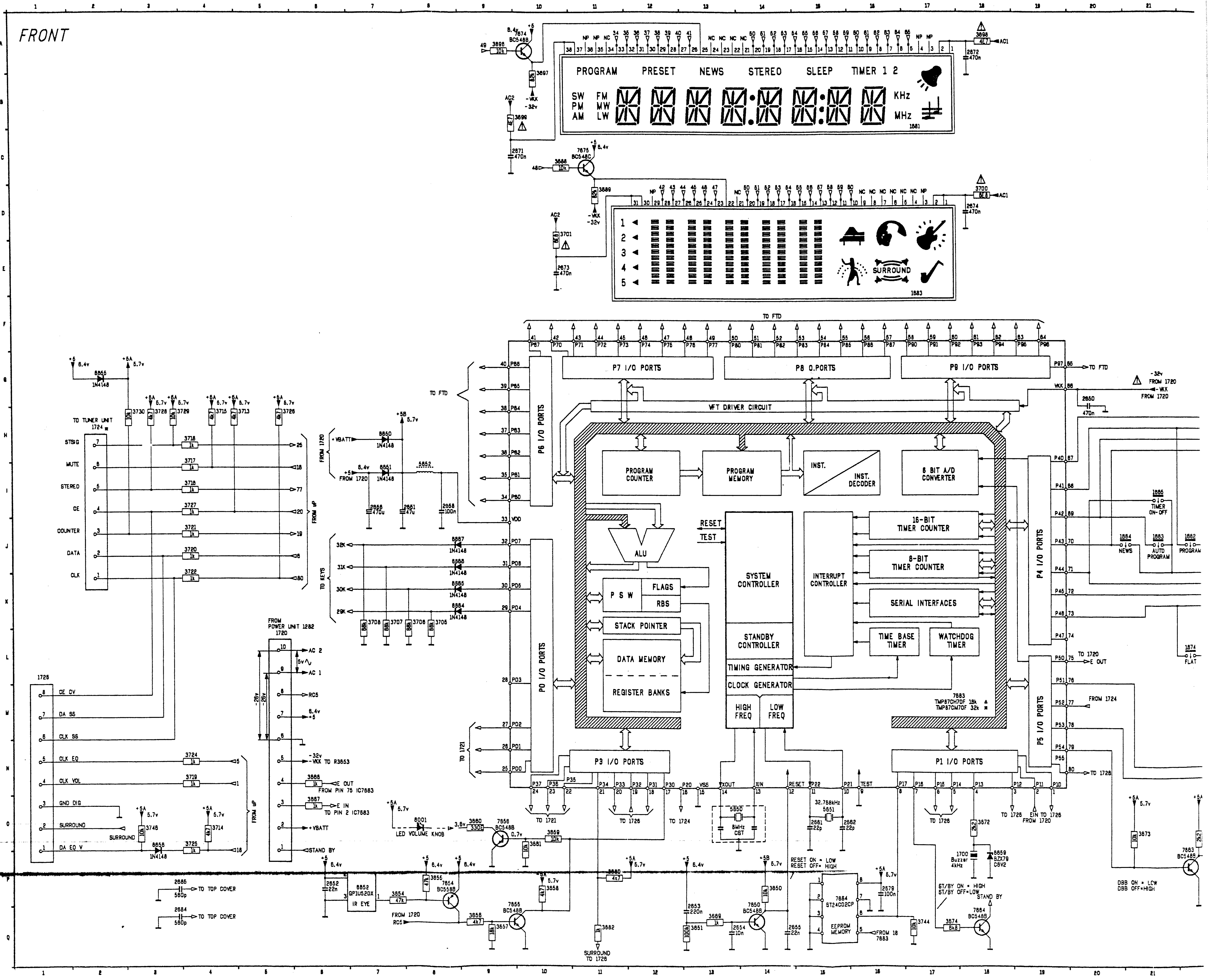
CHIP 7683 PLACED ON A-SIDE

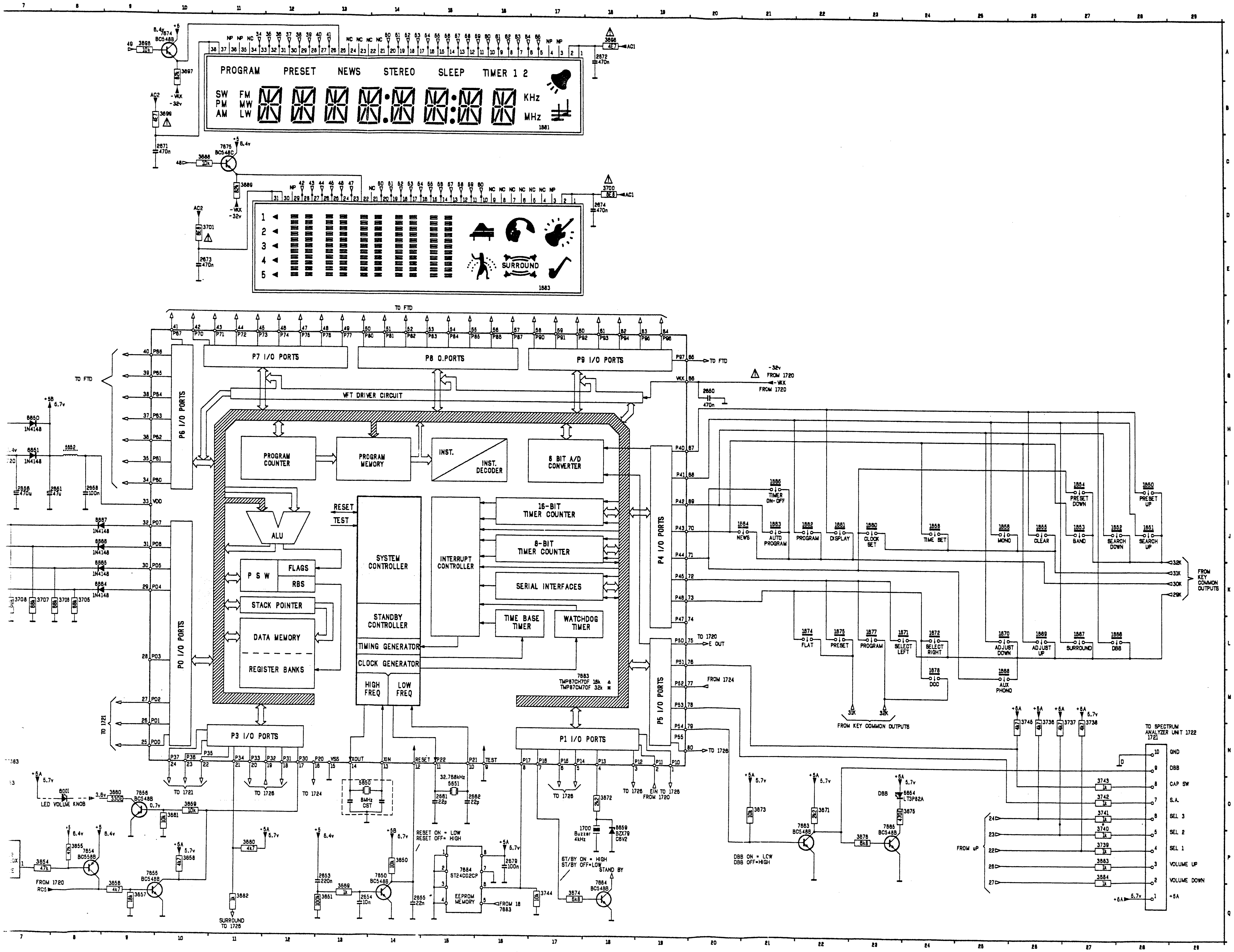
SM.3104-217-00530.SERV-MAN

PCS 57 689

0061	I5
0063	E4
0064	D1
0065	C1
1650	E8
1651	F8
1652	F8
1653	F7
1654	E7
1655	F6
1656	F5
1658	F4
1660	F4
1661	F3
1662	F2
1663	F1
1664	F1
1665	E1
1666	K8
1667	K7
1668	L5
1669	K6
1670	K5
1671	K3
1672	K4
1674	K1
1675	K2
1676	K1
1677	K2
1678	L4
1681	E4
1683	I5
1700	E2
1710	C1
1720	H2
1721	K8
1722	A3
1723	D7
1724	E7
1726	I8
1727	D5
1790	D3
1791	D4
2650	L5
2651	K4
2652	I1
2653	L3
2654	L3
2655	K4
2656	I2
2658	I4
2661	K5
2662	K5
2671	E2
2672	F6
2673	H3
2674	G7
2679	L4
2682	H4
2684	E1
2685	K8
2761	B8
2765	C6
2766	C5
2767	B5
2768	B5
2769	B6
2770	C6
2785	A4
2787	A5
2788	B4
2789	C5
2790	C4
2791	D4
2792	B3
2795	B4
2796	B4
2797	C3
3650	K3
3651	L3
3654	I1
3655	I1
3656	I1
3657	I1
3658	L2
3659	J6
3660	I7
3661	J7
3666	K4
3667	J4
3668	K3
3669	L3
3671	J8
3672	G2
3673	K7
3674	K4
3675	J8
3676	J8
3680	J6
3682	J7
3683	L4
3684	L3
3688	I3
3689	I2
3696	I3
3697	I2
3698	F2
3699	F2
3700	H6
3701	H2
3705	L6
3706	K3
3707	K3
3708	K3
3713	J6
3714	I6
3715	I7
3716	H7
3717	I7
3718	L4
3719	I7
3720	I7
3721	I7
3722	I7
3724	I7
3725	J7
3726	I6
3727	I7
3728	F7
3729	F7
3730	F7
3736	K7
3737	K7
3738	J6
3739	J7
3740	J7
3741	K7
3742	J7
3743	J7
3744	L5
3745	J6
3746	J8
3747	D5
3764	D5
3765	C6
3766	D6
3767	C5
3768	D5
3769	C5
3770	C5
3771	C5
3772	B6
3773	A5
3774	A6
3775	B5
3776	C5
3777	C5
3778	A5
3779	B5
3780	C6
3781	C6
3785	B5
3786	B4
3787	C5
3788	K7
3789	C5
3790	C3
3791	C4
3792	C3
3793	C4
3794	C4
3795	C5
3796	B3
3797	B3
3798	B3
3799	B3
5650	J4
5651	J5
5652	J4
6650	K2
6651	J2
6652	H2
6654	K8
6655	L2
6656	J8
6659	F3
6664	J3
6665	J3
6666	J3
6667	J2
6780	B4
6781	C5
6782	C5
6783	C5
6790	B3
7650	L3
7654	I1
7655	I1
7656	J7
7663	K8
7664	L2
7665	J8
7674	I2
7675	I2
7684	L5
7690	C4
7691	C4
7692	B3
7785	A4
7786	C5
7787	B5
7788	D5
7789	D5
8501	D2
9600	G1
9602	G1
9604	I1
9606	K1
9607	K1
9608	H1
9609	J2
9610	K2
9611	K2
9612	L2
9615	L2
9616	J2
9617	I2
9618	G2
9619	G2
9621	G2
9625	K2
9626	F2
9627	K3
9629	K3
9630	I3
9634	G3
9635	L3
9636	G3
9637	E3
9638	I3
9640	I3
9642	I3
9643	E3
9644	I3
9645	I3
9647	G3
9648	H3
9649	E3
9650	I4
9651	G4
9652	E4
9654	F4
9655	G4
9657	E4
9658	G4
9659	J3
9661	E4
9662	J3
9663	G4
9664	K4
9665	K4
9666	K3
9667	E4
9668	G4
9669	I4
9670	I4
9671	K4
9672	E4
9674	K3
9675	G4
9676	I4
9677	E4
9679	I4
9680	E4
9681	G4
9682	L4
9683	E4
9684	E4
9685	G4
9686	K4
9687	F4
9689	G4
9690	I4
9691	K4
9692	E4
9693	E5
9694	G5
9695	B5
9696	E5
9697	B5
9698	G5
9699	K5
9700	K5
9701	G5
9702	G5
9703	F5
9704	E5
9705	G5
9706	K5
9708	E5
9709	G5
9710	C5
9711	E5
9712	G5
9713	K5
9714	G5
9715	K5
9716	E5
9717	K5
9718	G5
9719	E5
9720	J5
9721	K6
9722	E5
9723	G5
9724	I5
9725	I5
9726	J6
9727	E6
9728	G6
9730	E6
9731	E6
9732	C6
9733	E6
9735	F6
9736	G6
9737	I6
9738	L6
9739	G6
9740	E6
9741	K6
9742	G6
9743	I6
9744	E6
9745	J6
9746	K6
9747	I6
9748	I6
9749	J6
9750	K6
9752	I6
9753	L6
9754	J6
9755	I6
9756	J6
9757	J6
9758	H6
9759	K7
9762	H7
9763	G7
9764	G8
9765	G7
9766	G7
9767	G7
9768	G7
9769	G7
9770	J7
9771	G7
9772	G7
9773	K7
9774	G8
9775	G8
9776	G8
9777	G8
9778	G8
9782	H8
9783	D1
9787	J7
9788	K5
9798	I1
9799	C1
9801	J7
9802	D4
9803	J7
9805	K8


FRONT
PROGRAM
PRESET
NEWS
SW FM
PM MW
AM LW
P7 I/O PORTS
VFT DRIVER C
P6 I/O PORTS
PROGRAM COUNTER
PROGRAM MEMORY
ALU
RESET
TEST
P S W
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
TIMING
CLOCK
HIGH FREQ
P0 I/O PORTS
P3 I/O PORTS
TO FTD
TO KEYS
TO 1721
TO 1726
TO 1724
TO TUNER UNIT 1724
STSIG
MUTE
STEREO
CE
COUNTER
DATA
CLK
FROM uP
FROM 1720
FROM POWER UNIT 1282 1720
1726
CE CV
DA SS
CLK SS
CLK EQ
CLK VOL
GND DIG
SURROUND
DA EQ V
AC 2
AC 1
RC5
-VKK TO R3653
E OUT FROM PIN 75 IC7553
E IN TO PIN 2 IC7553
+VBATT
STAND BY
LED VOLUME KNOB
6852 GP1U52X IR EYE
TO TOP COVER
SURROUND TO 1726
7674 BC548B
7675 BC548C
7656 BC548B
7654 BC558B
7655 BC548B
8MHz CST
1N4148


FRONT
PROGRAM PRESET NEWS STEREO SLEEP TIMER 1 2
SW FM
PM MW
AM LW
KHz
MHz
1581
SURROUND
1583
TO FTD
P7 I/O PORTS
P8 O.PORTS
P9 I/O PORTS
P6 I/O PORTS
P0 I/O PORTS
P3 I/O PORTS
P1 I/O PORTS
P4 I/O PORTS
P5 I/O PORTS
VFT DRIVER CIRCUIT
PROGRAM COUNTER
PROGRAM MEMORY
INST.
INST. DECODER
8 BIT A/D CONVERTER
ALU
RESET
TEST
SYSTEM CONTROLLER
INTERRUPT CONTROLLER
16-BIT TIMER COUNTER
8-BIT TIMER COUNTER
SERIAL INTERFACES
P S W
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
STANDBY CONTROLLER
TIMING GENERATOR
CLOCK GENERATOR
HIGH FREQ
LOW FREQ
TIME BASE TIMER
WATCHDOG TIMER
7683
TMP87CM70F 18k
TMP87CM70F 32k
TO TUNER UNIT 1724
STSIG
MUTE
STEREO
CE
COUNTER
DATA
CLK
FROM uP
TO KEYS
32K
31K
30K
29K
FROM 1720
+VBATT
FROM POWER UNIT 1282 1720
AC 2
AC 1
RC5
STAND BY
-VKK TO R3653
E OUT
FROM PIN 75 IC7683
E IN
TO PIN 2 IC7683
1728
CE CV
DA SS
CLK SS
CLK EQ
CLK VOL
GND DIG
SURROUND
DA EQ V
LED VOLUME KNOB
IR EYE
TO TOP COVER
EEPROM MEMORY
ST24C02CP
8MHz CST
32.768kHz
RESET ON = LOW
RESET OFF= HIGH
1700 Buzzer 4kHz
ST/BY ON = HIGH
ST/BY OFF=LOW
STAND BY
DBB ON = LOW
DBB OFF=HIGH
TO 1721
TO 1726
TO 1724
TO 1728
FROM 1724
TO 1720
SURROUND TO 1728
NEWS
AUTO PROGRAM
TIMER ON-OFF
PROGRAM
FLAT
FROM 1720


PROGRAM
PRESET
NEWS
STEREO
SLEEP
TIMER 1 2
SW FM
PM MW
AM LW
KHz
MHz
1681
1683
SURROUND
TO FTD
P7 I/O PORTS
P8 O.PORTS
P9 I/O PORTS
P6 I/O PORTS
P0 I/O PORTS
P3 I/O PORTS
P1 I/O PORTS
P4 I/O PORTS
P5 I/O PORTS
VFT DRIVER CIRCUIT
PROGRAM COUNTER
PROGRAM MEMORY
INST. DECODER
8 BIT A/D CONVERTER
RESET
TEST
ALU
P S W
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
SYSTEM CONTROLLER
STANDBY CONTROLLER
TIMING GENERATOR
CLOCK GENERATOR
HIGH FREQ
LOW FREQ
INTERRUPT CONTROLLER
16-BIT TIMER COUNTER
8-BIT TIMER COUNTER
SERIAL INTERFACES
TIME BASE TIMER
WATCHDOG TIMER
7683
TMP87CH70F 16k
TMP87CM70F 32k
-32v FROM 1720
-VKK FROM 1720
TO 1720 E OUT
FROM 1724
TO 1726
TO 1721
TO 1724
TO 1726
EIN TO 1726
FROM 1720
TIMER ON-OFF
NEWS
AUTO PROGRAM
PROGRAM
DISPLAY
CLOCK SET
TIME SET
MONO
CLEAR
BAND
SEARCH DOWN
SEARCH UP
PRESET DOWN
PRESET UP
FLAT
PRESET
PROGRAM
SELECT LEFT
SELECT RIGHT
DCC
ADJUST DOWN
ADJUST UP
SURROUND
DBB
AUX PHONO
FROM KEY COMMON OUTPUTS
TO SPECTRUM ANALYZER UNIT 1722
1721
GND
DBB
CAP SW
S.A.
SEL 3
SEL 2
SEL 1
VOLUME UP
VOLUME DOWN
+5A
FROM uP
DBB ON = LOW
DBB OFF=HIGH
LT3P82A
LED VOLUME KNOB
FROM 1720 RC5
SURROUND TO 1726
RESET ON = LOW
RESET OFF= HIGH
8MHz CST
32.768kHz
ST24C02CP
EEPROM MEMORY
FROM 18 7683
1700 Buzzer 4kHz
BZX79 C6V2
ST/BY ON = HIGH
ST/BY OFF=LOW
STAND BY
BC548B
BC548C
BC558B
1N4148
TO 1721

1650	I28
1651	J28
1652	J28
1653	J27
1654	I27
1655	J26
1656	J25
1658	J24
1660	J23
1661	J22
1662	J22
1663	J21
1664	J21
1665	I21
1666	L28
1667	L27
1668	M25
1669	L26
1670	L25
1671	L24
1672	L24
1674	L22
1675	L22
1677	L23
1678	M24
1720	L5
1721	N28
1724	H2
1726	L1
2650	O20
2651	I7
2652	P8
2653	Q13
2654	Q13
2655	Q14
2656	I7
2658	I8
2661	O15
2662	O15
2671	C8
2672	A18
2673	E10
2674	D18
2679	P16
2684	Q3
2685	P3
3650	P14
3651	Q13
3654	P7
3655	P8
3656	Q9
3657	Q9
3658	P10
3659	O10
3660	O9
3661	O10
3666	N6
3667	O6
3669	Q13
3671	O22
3672	O18
3673	O21
3674	Q17
3675	O24
3676	P23
3680	P11
3682	Q11
3683	P27
3684	P27
3688	C10
3689	D11
3696	A9
3697	B10
3698	A18
3699	B10
3700	D18
3701	D10
3705	K8
3706	K8
3707	K7
3708	K7
3713	H5
3714	D4
3715	H4
3716	I4
3717	I4
3718	H4
3719	N4
3720	J4
3721	J4
3722	K4
3724	N4
3725	O4
3726	H5
3727	I4
3728	H3
3729	H3
3730	H3
3736	N26
3737	N27
3738	N27
3739	P27
3740	P27
3741	O27
3742	O27
3743	O27
3744	Q17
3745	N26
3746	O3
5650	O13
5651	O15
5652	I8
6001	O8
6650	H7
6651	I7
6652	P7
6654	O24
6655	G2
6656	O3
6659	P18
6664	K8
6665	K8
6666	J8
6667	J8
7650	Q14
7654	P8
7655	Q9
7656	Q9
7663	P22
7664	Q18
7665	P23
7674	A10
7675	C11
7683	M17
7684	P15

0046	D4
0056	G8
0058	A6
1452	D5
1453	E1
1454	C4
1455	C8
1458	G4
1462	G2
1463	G6
1551	G8
2453	F8
2454	F7
2459	F8
2460	F7
2465	E8
2466	E7
2467	E8
2468	E7
2471	E4
2472	F4
2477	E4
2478	F4
2479	E4
2480	F4
2483	E5
2484	F5
2574	D5
2581	B5
2582	B7
2587	A5
2591	B7
2592	A7
2597	B7
2598	A7
2599	D5
2613	B7
2614	C8
2625	B7
2626	E8
2627	B7
2628	E8
2635	C7
2636	D7
2637	C7
2638	D7
2639	B8
2640	C8
2641	D5
2642	C5
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3463	F8
3464	F7
3465	F8
3466	F7
3467	E7
3468	F7
3469	E7
3470	F7
3471	D7
3472	E7
3473	F7
3474	F7
3475	E7
3476	F7
3478	G7
3480	F7
3481	F8
3482	F6
3483	F5
3484	F5
3485	F5
3486	F5
3487	F5
3488	F5
3489	F5
3490	F5
3491	E5
3492	E5
3493	E5
3494	F5
3495	F6
3496	F6
3497	E6
3498	E6
3499	F6
3500	F8
3506	F4
3508	F4
3510	F4
3511	E4
3512	F4
3563	E3
3564	E3
3579	B5
3580	A5
3581	B5
3601	B6
3602	B8
3605	B8
3621	C5
3622	B5
3629	A6
3630	A6
3637	C5
6575	A5
6603	C5
7451	E8
7452	E7
7453	F4
7575	B5
7576	A5
7601	C7
7602	D8
7603	D7
7604	A6
7605	A8
8450	A5
8451	D4
9461	E4
9464	F5
9465	E5
9466	E5
9467	F5
9468	D5
9469	D5
9470	E5
9471	F5
9472	D5
9473	D5
9474	E5
9475	F5
9476	E5
9477	E5
9478	F5
9479	C5
9480	E5
9481	D5
9482	C5
9483	C5
9484	C5
9485	E6
9486	A6
9487	D6
9488	E6
9489	B6
9490	E6
9491	E6
9492	E6
9493	B6
9494	B6
9495	F6
9496	G7
9497	A7
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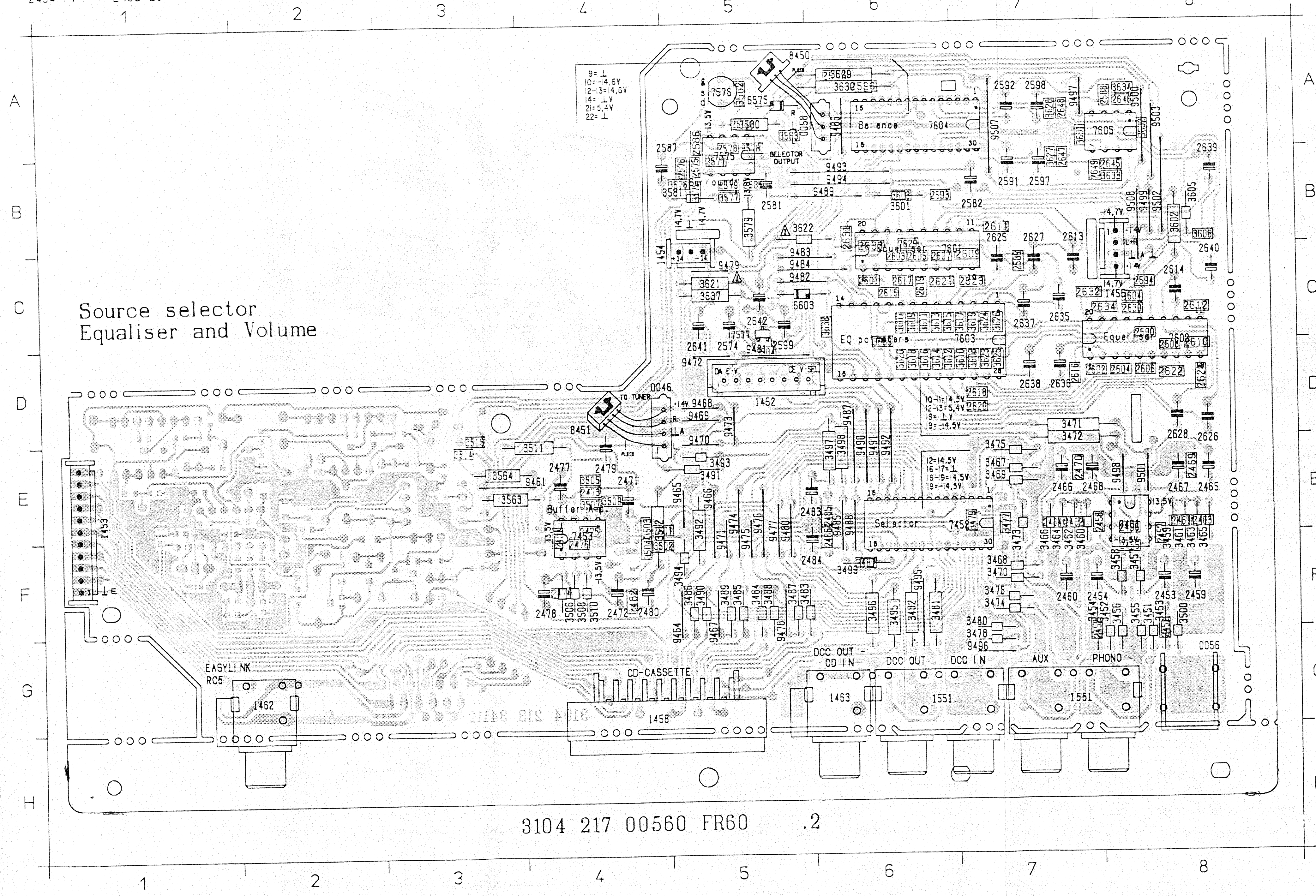
9500	A8
9501	E8
9502	B8
9503	A8
9507	A7
9508	B8


Source selector
Equaliser and Volume

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
Balance 7604
SELECTOR OUTPUT
EQ potmeters 7603
Equaliser
Selector 7452
Buffer Amp.
TO TUNER
DCC OUT - CD IN
DCC OUT
DCC IN
AUX
PHONO
EASYLINK RC5
CD-CASSETTE
1452
1453
1454
1458
1462
1463
1551
0046
0056
0058
8450
8451
3104 217 00560 FR60 .2

2451	G1
2452	G2
2455	F1
2456	F1
2457	F1
2458	E2
2461	E1
2462	E2
2463	E1
2464	E2
2469	E1
2470	E2
2473	E5
2474	F5
2475	E5
2476	F5
2481	F5
2482	F5
2485	E3
2486	F3
2487	F3
2575	B4
2576	B4
2577	B4
2578	B4
2579	B4
2580	A4
2585	B4
2586	A4
2588	A1
2589	C2
2590	C1
2593	B3
2594	C1
2595	A3
2598	A3
2601	C3
2602	D1
2603	C3
2604	D1
2605	C3
2606	D1
2607	C3
2608	D1
2609	C2
2610	D1
2611	B2
2612	C1
2615	C3
2616	D2
2617	C3
2618	D2
2619	C3
2620	D2
2621	C3
2622	D1
2623	C2
2624	D1
2629	C3
2630	C1
2631	B3
2632	C2
2633	C3
2634	C1
2645	B1
2646	A1
2647	B2
2648	A2
2649	B2
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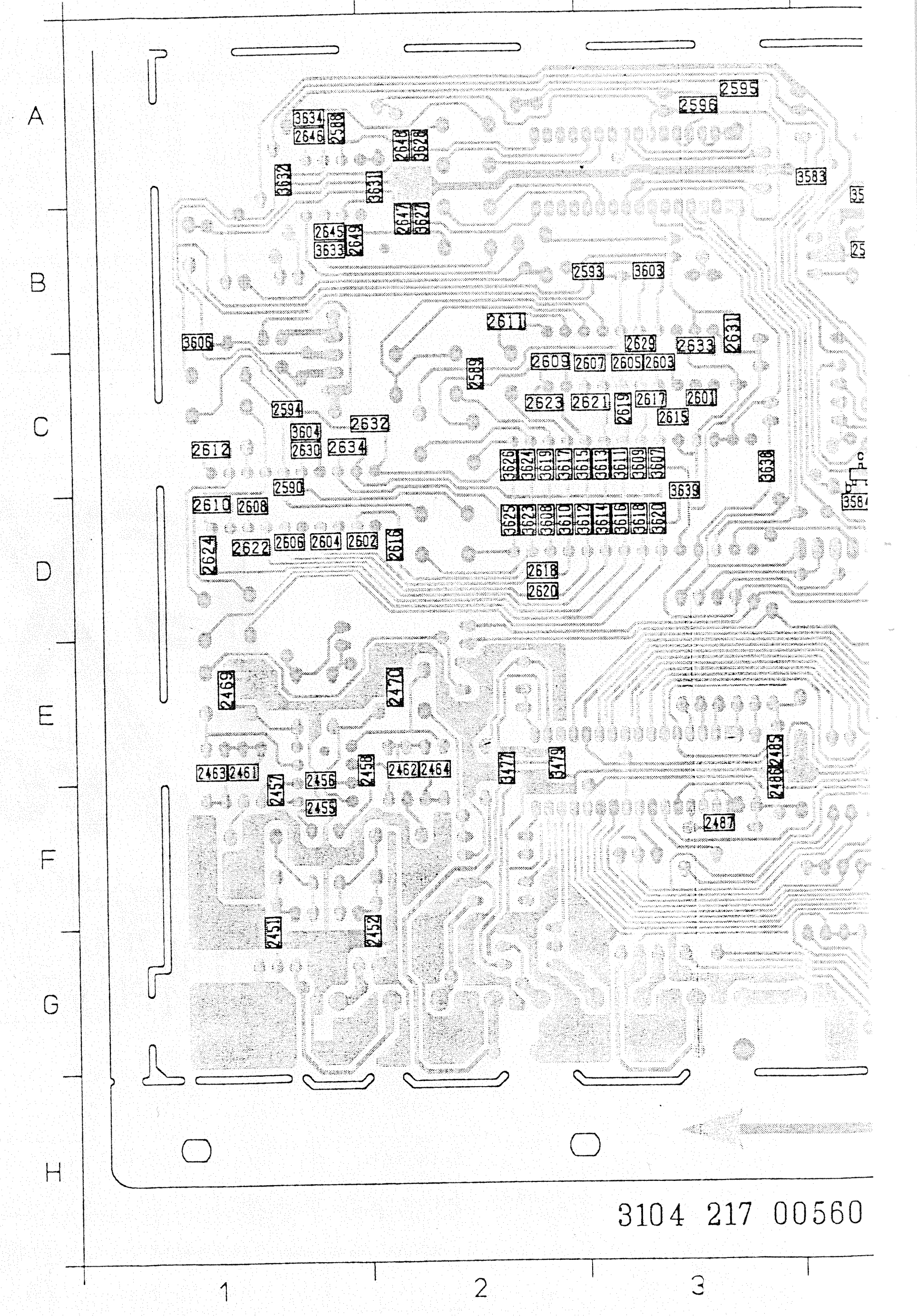
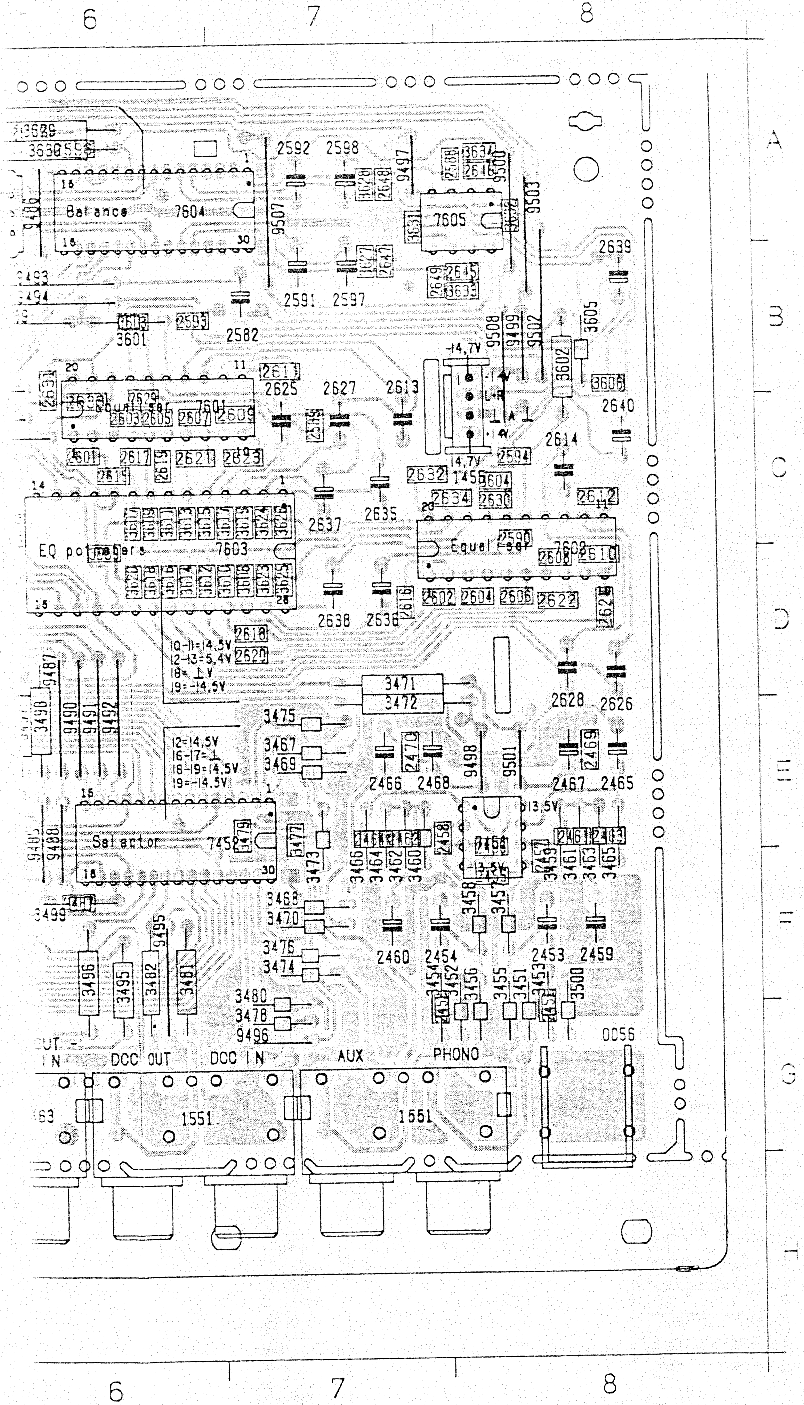
3505	E5
3507	E5
3509	E5

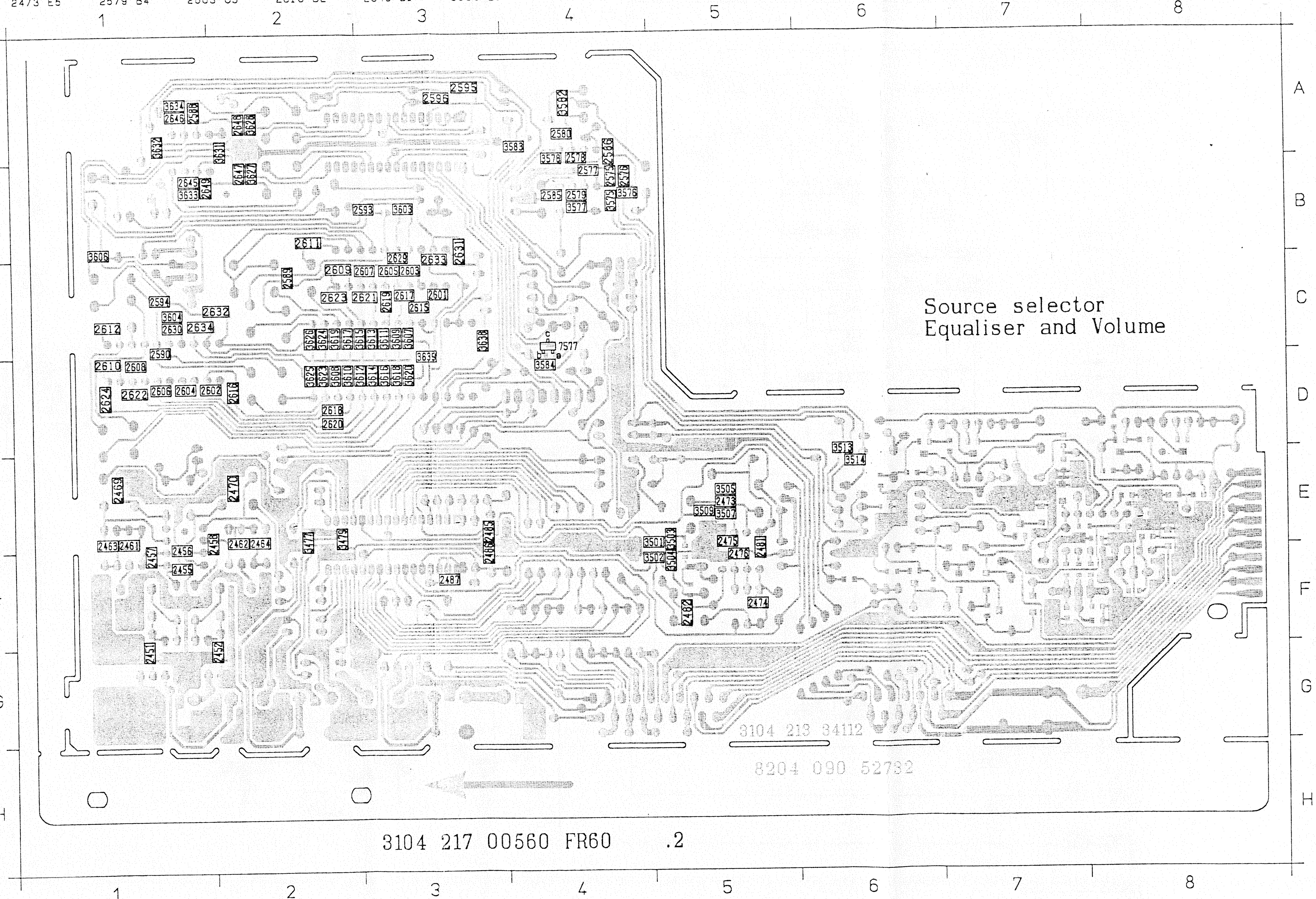


1
2
3
A
B
C
D
E
F
G
H
3104 217 00560

03	C5	9461	E4	9476	E5	9489	B6	9502	B8
1	E8	9464	F5	9477	E5	9490	E6	9503	A8
2	E7	9465	E5	9478	F5	9491	E6	9507	A7
3	F4	9466	E5	9479	C5	9492	E6	9508	B8
75	B5	9467	F5	9480	E5	9493	B6		
6	A5	9468	D5	9481	D5	9494	B6		
1	C7	9469	D5	9482	C5	9495	F6		
2	D8	9470	E5	9483	C5	9496	G7		
3	D7	9471	F5	9484	C5	9497	A7		
4	A6	9472	D5	9485	E6	9498	E8		
5	A8	9473	D5	9486	A6	9499	B8		
0	A5	9474	E5	9487	D6	9500	A8		
1	D4	9475	F5	9488	E6	9501	E8		


6
7
8
A
B
C
D
E
F
G
H
Balance
7604
7605
Equaliser
7601
EQ potmeters
7603
Equaliser
7602
Selector
7452
DCC OUT
DCC IN
AUX
PHONO
1551
0056

2451	G1	2474	F5	2580	A4	2604	D1	2619	C3	2646	A1	3513	E6	3608	D2	3623	D2
2452	G2	2475	E5	2585	B4	2605	C3	2620	D2	2647	B2	3514	E6	3609	C3	3624	C2
2455	F1	2476	F5	2586	A4	2606	D1	2621	C3	2648	A2	3575	B4	3610	D2	3625	D2
2456	F1	2481	F5	2588	A1	2607	C3	2622	D1	2649	B2	3576	B4	3611	C3	3626	C2
2457	F1	2482	F5	2589	C2	2608	D1	2623	C2	3477	E2	3577	B4	3612	D3	3627	B2
2458	E2	2485	E3	2590	C1	2609	C2	2624	D1	3479	E2	3578	B4	3613	C3	3628	A2
2461	E1	2486	F3	2593	B3	2610	D1	2629	C3	3501	E5	3582	A4	3614	D3	3631	A2
2462	E2	2487	F3	2594	C1	2611	B2	2630	C1	3502	F5	3583	A4	3615	C3	3632	A1
2463	E1	2575	B4	2595	A3	2612	C1	2631	B3	3503	E5	3584	D4	3616	D3	3633	B1
2464	E2	2576	B4	2596	A3	2615	C3	2632	C2	3504	F5	3603	B3	3617	C2	3634	A1
2469	E1	2577	B4	2601	C3	2616	D2	2633	C3	3505	E5	3604	C1	3618	D3	3638	C3
2470	E2	2578	B4	2602	D1	2617	C3	2634	C1	3507	E5	3606	B1	3619	C2	3639	D3
2473	E5	2579	B4	2603	C3	2618	D2	2645	B1	3509	E5	3607	C3	3620	D3	7577	C4


1
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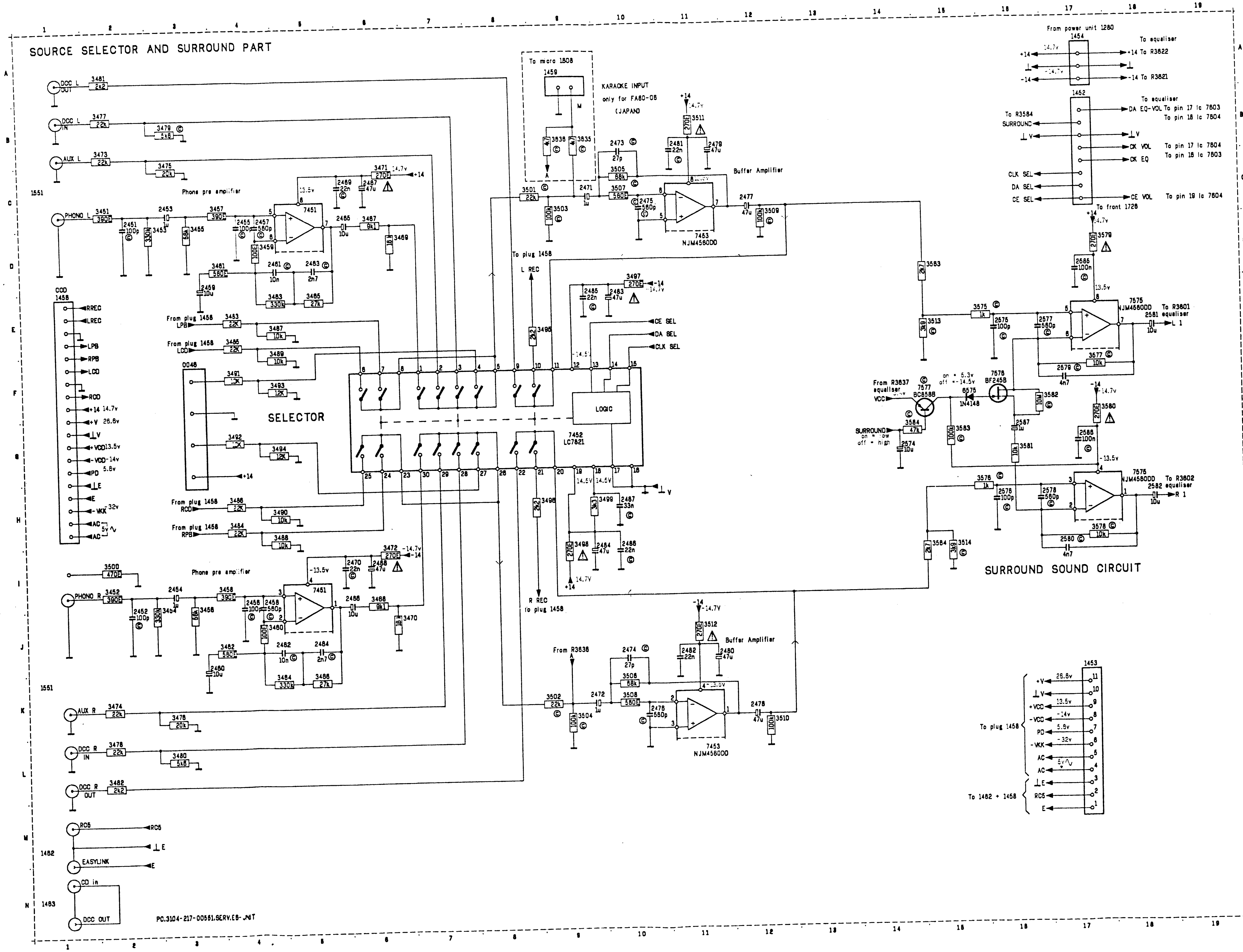
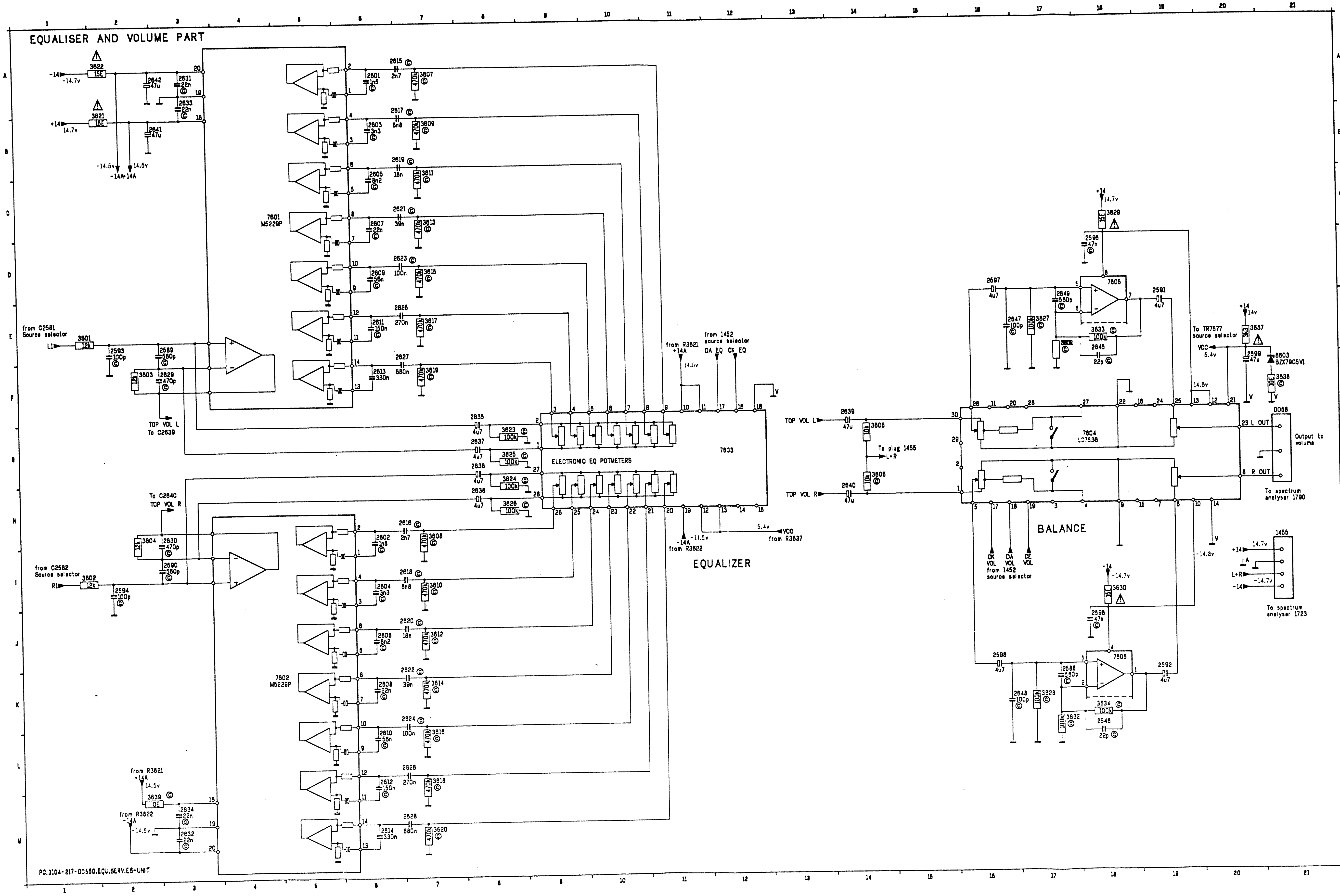
A
B
C
D
E
F
G
H
Source selector
Equaliser and Volume
7577
3104 213 34112
8204 090 52732
3104 217 00560 FR60 .2

SOURCE SELECTOR AND SURROUND PART


DCC L OUT
DCC L IN
AUX L
PHONO L
Phone pre amplifier
7451
CCD 1458
RREC
LREC
LPB
RPB
LCD
RCD
+14 14.7v
+V 26.8v
⊥V
+VCC 13.5v
-VCC -14v
PD 5.8v
⊥E
E
-VKK 32v
AC 5v∿
AC
0046
SELECTOR
From plug 1458 LPB
From plug 1458 LCD
From plug 1458 RCD
From plug 1458 RPB
7452 LC7821
LOGIC
CE SEL
DA SEL
CLK SEL
To micro 1808
1459
KARAOKE INPUT only for FA80-08 (JAPAN)
To plug 1458 L REC
R REC To plug 1458
Buffer Amplifier
7453 NJM4560DD
From R3638
PHONO R
AUX R
DCC R IN
DCC R OUT
RC5
EASYLINK
CD in
DCC OUT
1551
1482
1483
PC.3104-217-00561.SERV.EB-UNIT
From power unit 1280
1454
To equaliser
+14 To R3822
-14 To R3821
1452
DA EQ-VOL To pin 17 Ic 7603 To pin 18 Ic 7604
To R3584 SURROUND
CK VOL To pin 17 Ic 7604
CK EQ To pin 18 Ic 7603
CLK SEL
DA SEL
CE SEL
CE VOL To pin 19 Ic 7604
To front 1728
7575 NJM4580DD
To R3801 equaliser
2581
L 1
To R3802 equaliser
2582
R 1
From R3837 equaliser
VCC
SURROUND on = low off = high
7577 BC858B
6575 1N4148
7576 BF245B
on = 5.3v off = -14.5v
SURROUND SOUND CIRCUIT
1453
To plug 1458
To 1482 + 1458
+V 26.8v
⊥V
+VCC 13.5v
-VCC -14v
PD 5.8v
-VKK -32v
AC 5v∿
AC
⊥E
RC5
E

2451	C2	3577	F17
2452	J2	3578	I17
2453	C3	3579	D17
2454	I3	3580	G17
2455	C4	3581	G16
2456	I4	3582	F16
2457	C4	3583	G15
2458	I4	3584	G14
2459	D3	3635	B9
2460	J3	3636	B9
2461	D4	6575	F15
2462	J4	7451	C5
2463	D5	7451	I5
2464	J5	7452	G9
2465	C6	7453	D11
2466	I6	7453	L11
2467	C6	7575	E18
2468	I6	7575	H18
2469	C6	7576	F16
2470	I6	7577	F15
2471	C9		
2472	K9		
2473	B10		
2474	J10		
2475	C10		
2476	K10		
2477	C12		
2478	K12		
2479	B11		
2480	J11		
2481	B11		
2482	J11		
2483	E10		
2484	I9		
2485	E9		
2486	I10		
2487	H10		
2574	G14		
2575	E16		
2576	H16		
2577	E16		
2578	H16		
2579	F17		
2580	I17		
2581	E18		
2582	H18		
2585	D17		
2586	G17		
2587	G16		
3451	C2		
3452	I2		
3453	D3		
3454	J3		
3455	D3		
3456	J3		
3457	C4		
3458	I4		
3459	D4		
3460	J4		
3461	D4		
3462	J4		
3463	E4		
3464	K4		
3465	E5		
3466	K5		
3467	C6		
3468	I6		
3469	D6		
3470	J6		
3471	C6		
3472	I6		
3473	B2		
3474	K2		
3475	C3		
3476	K3		
3477	B2		
3478	L2		
3479	B3		
3480	L3		
3481	A2		
3482	L2		
3483	E4		
3484	H4		
3485	E4		
3486	H4		
3487	E4		
3488	H4		
3489	F4		
3490	H4		
3491	F4		
3492	G4		
3493	F4		
3494	G4		
3495	E9		
3496	H9		
3497	D10		
3498	I9		
3499	H9		
3500	I2		
3501	C8		
3502	K9		
3503	C9		
3504	K9		
3505	C10		
3506	K10		
3507	C10		
3508	K10		
3509	C12		
3510	K12		
3511	B11		
3512	J11		
3513	E15		
3563	D15		
3564	I15		
3575	E15		
3576	H15		

EQUALISER AND VOLUME PART


1455
-14
-14.7v
3822
15E
2642
47u
2631
22n
2633
22n
+14
14.7v
3821
15E
2641
47u
-14.5v
14.5v
-14A
+14A
7801
M5229P
7802
M5229P
2615
2n7
3807
470k
2601
1n5
2617
8n8
2603
3n3
3809
2619
18n
2605
8n2
3811
2621
39n
2607
22n
3813
2623
100n
2609
56n
3815
2625
270n
2611
150n
3817
2627
680n
2613
330n
3819
from C2581
Source selector
3801
12k
L1
2593
100p
2589
580p
3803
2629
470p
TOP VOL L
To C2639
To C2640
TOP VOL R
3804
2630
470p
2590
580p
from C2582
Source selector
3802
12k
R1
2594
100p
2635
4u7
3823
100k
2637
4u7
3825
100k
2636
4u7
3824
100k
2638
4u7
3826
100k
ELECTRONIC EQ POTMETERS
7633
EQUALIZER
from R3821
+14A
14.6v
from 1452
source selector
DA EQ
CK EQ
-14A
-11.5v
from R3822
5.4v
VCC
from R3637
2616
2n7
2602
1n5
3808
2618
8n8
2604
3n3
3810
2620
18n
2606
8n2
3812
2622
39n
2608
22n
3814
2624
100n
2610
56n
3816
2626
270n
2612
150n
3818
2628
680n
2614
330n
3820
from R3821
+14A
14.5v
3639
0E
2634
22n
from R3622
-14A
-14.5v
2632
22n
PC.3104-217-00550.EQU.SERV.E6-UNIT
TOP VOL L
2639
47u
3605
10k
To plug 1455
L+R
TOP VOL R
2640
47u
3606
10k
+14
14.7v
3629
15E
2595
47n
2597
4u7
2649
580p
7805
2591
4u7
2647
100p
3627
100k
3633
100k
2645
22p
To TR7577
source selector
VCC
5.4v
+14
14v
3637
3k3
2599
47u
6603
BZX79C5V1
3638
10E
14.8v
7604
LC7536
0068
L OUT
R OUT
Output to
volume
To spectrum
analyser 1790
BALANCE
CK VOL
DA VOL
CE VOL
from 1452
source selector
-14.8v
1455
+14
14.7v
L+R
-14.7v
-14
To spectrum
analyser 1723
-14
-14.7v
3630
15E
2596
47n
2598
4u7
2588
580p
7806
2592
4u7
2648
100p
3828
100k
3834
100k
3632
100k
2646
22p

2588	K17
2589	E3
2590	I3
2591	E19
2592	K19
2593	E2
2594	I2
2595	D18
2596	J18
2597	D16
2598	J16
2599	F20
2601	A6
2602	H6
2603	B6
2604	I6
2605	B6
2606	J6
2607	C6
2608	K6
2609	D6
2610	L6
2611	E6
2612	L6
2613	F6
2614	M6
2615	A7
2616	H7
2617	A7
2618	I7
2619	B7
2620	J7
2621	C7
2622	K7
2623	D7
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2628	M7
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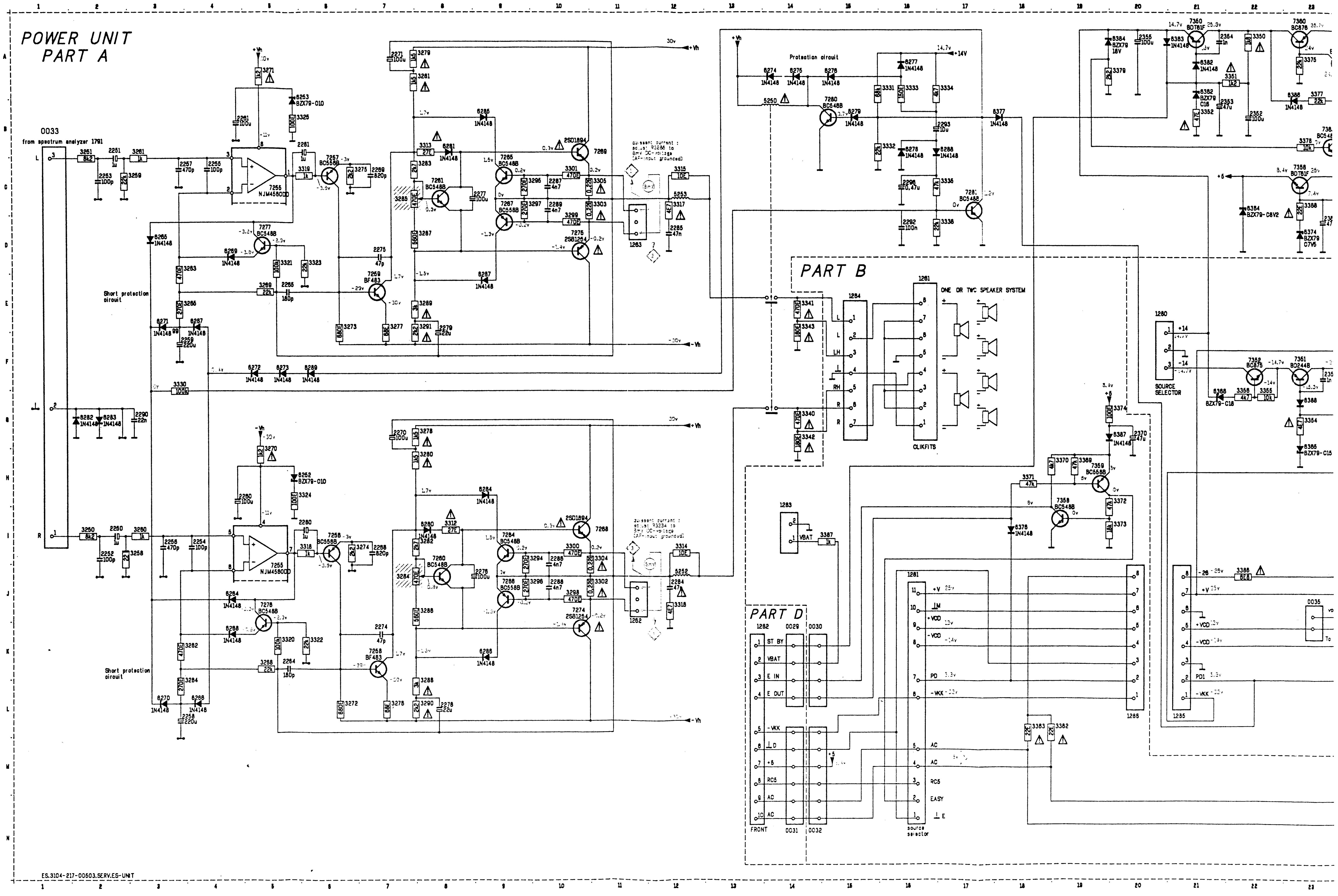
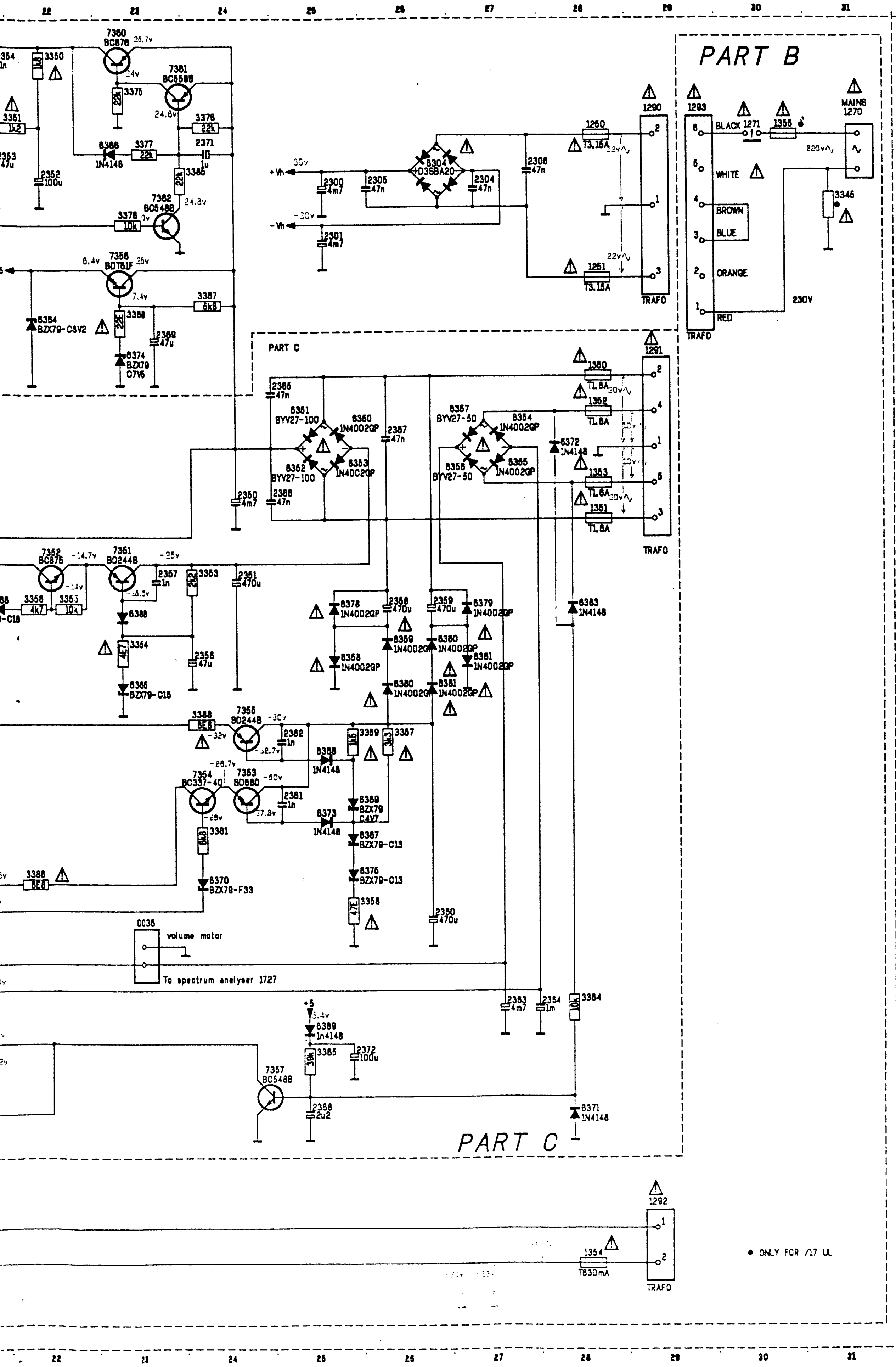
2632	M3
2633	A3
2634	M3
2635	F8
2636	G8
2637	G8
2638	H8
2639	F14
2640	H14
2641	B2
2642	A2
2645	E18
2646	L18
2647	E16
2648	K16
2649	E17
3601	E1
3602	I1
3603	F2
3604	H2
3605	G14
3606	G14
3607	A7
3608	H7
3609	B7
3610	I7
3611	B7
3612	J7
3613	C7
3614	K7
3615	D7
3616	L7
3617	E7
3618	L7
3619	F7
3620	M7
3621	A2
3622	A2
3623	G8
3624	G8
3625	G8
3626	H8
3627	E17
3628	K17
3629	C18
3630	I18
3631	E17
3532	K17
3533	E18
3534	K18
3637	E20
3638	F21
3639	M2
6503	F21
7601	C5
7502	K5
7603	G12
7604	G18
7605	D18
7605	K19


POWER UNIT
PART A
0033
from spectrum analyzer 1791
Short protection circuit
Short protection circuit
NJM4558DD
quiescent current : adjust R3286 to 8mV DC-voltage (AF-input grounded)
quiescent current : adjust R3284 to 8mV DC-voltage (AF-input grounded)
Protection circuit
PART B
ONE OR TWO SPEAKER SYSTEM
CLIKFITS
1264
1261
1283
1260
SOURCE SELECTOR
PART D
1282
0029
0030
ST BY
VBAT
E IN
E OUT
-VKK
+5
RC5
AC
FRONT
0031
0032
source selector
+V
+VCD
-VCD
PD
-VKK
EASY
1285
1235
0035
ES.3104-217-00603.SERV.ES-UNIT


22
23
24
25
26
27
28
29
30
31
PART B
PART C
PART C
1293
BLACK
1271
1355
MAINS
1270
220V~
WHITE
BROWN
BLUE
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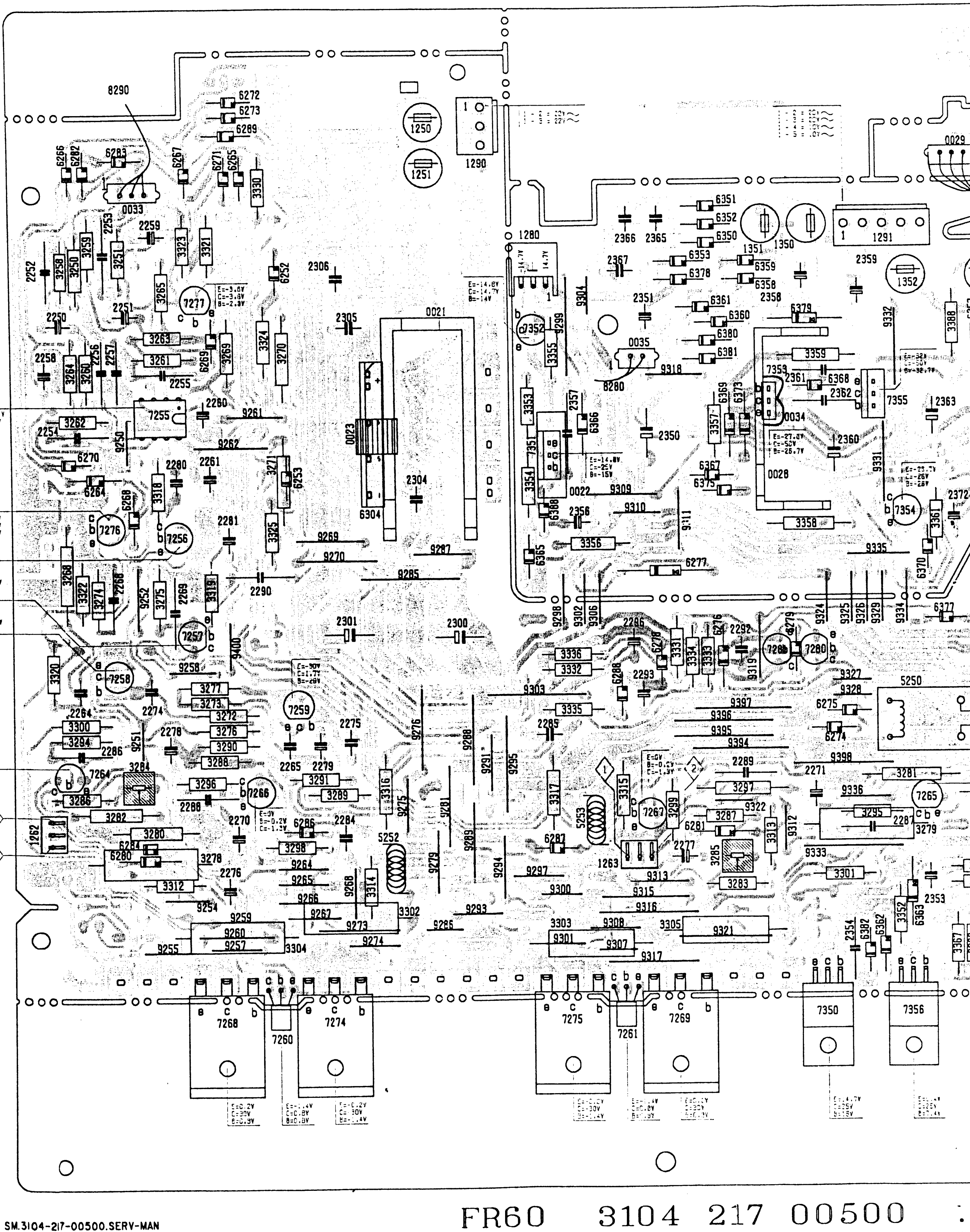
Power unit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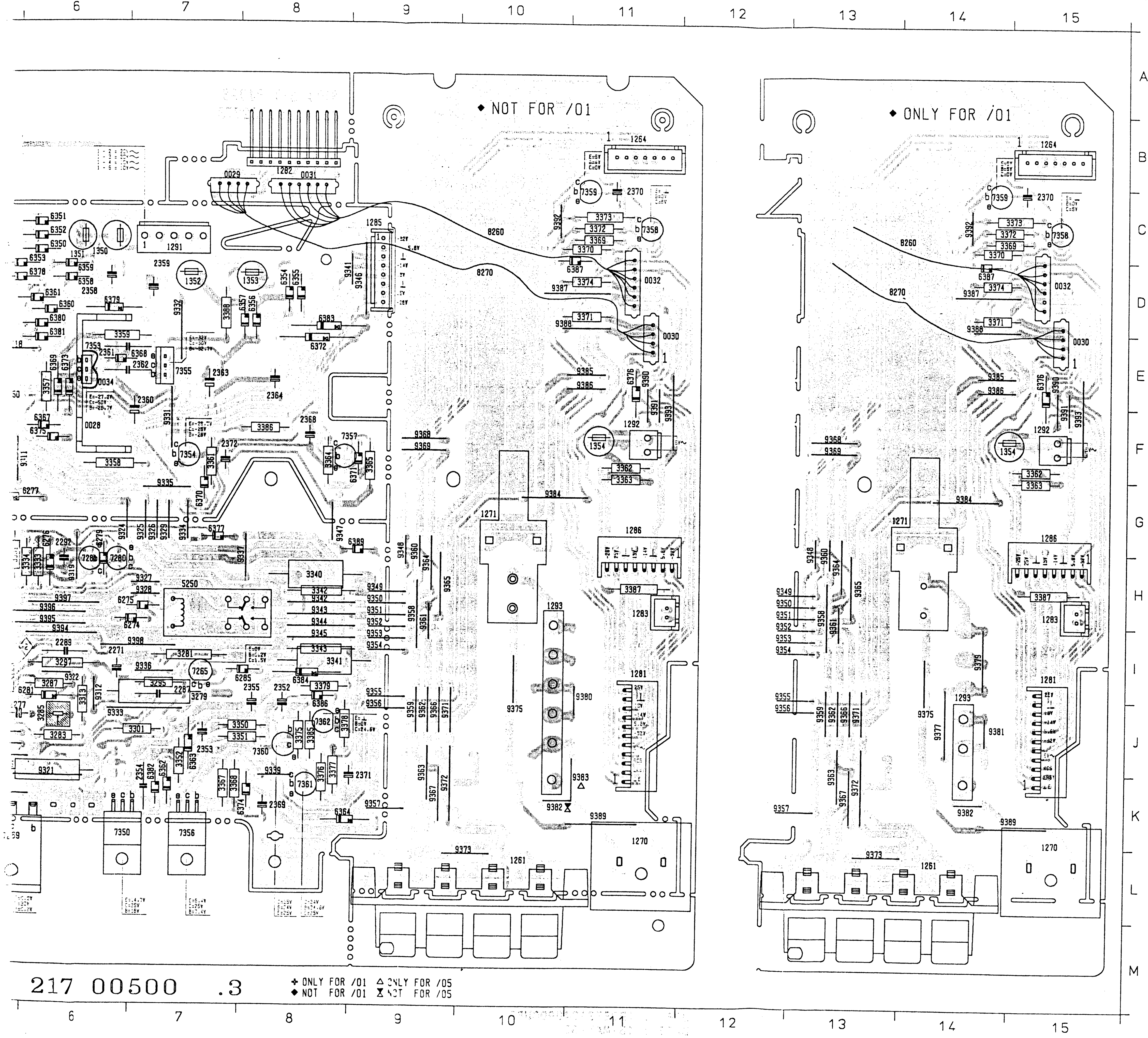
FR60 3104 217 00500



217 00500 .3

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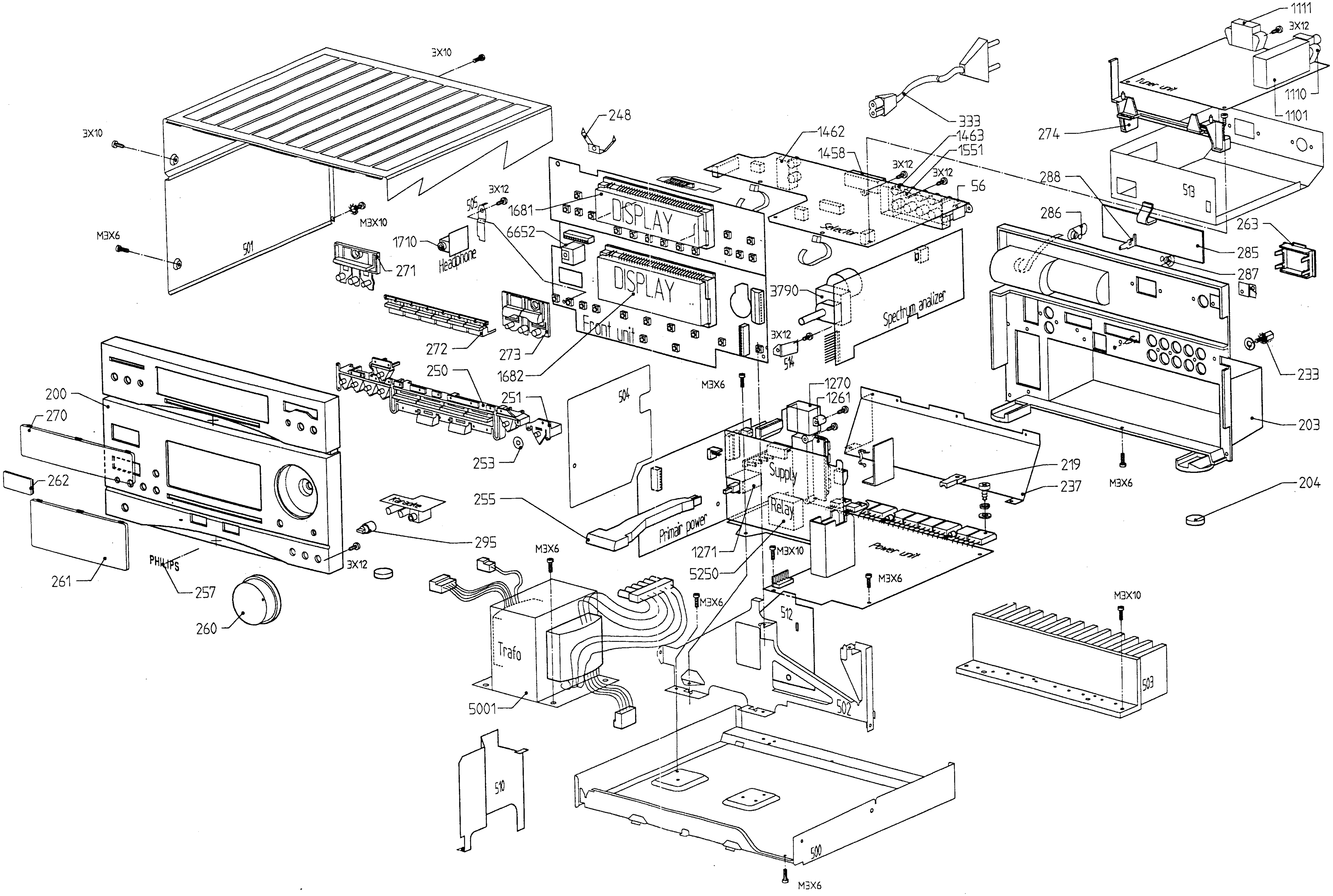
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Front unit
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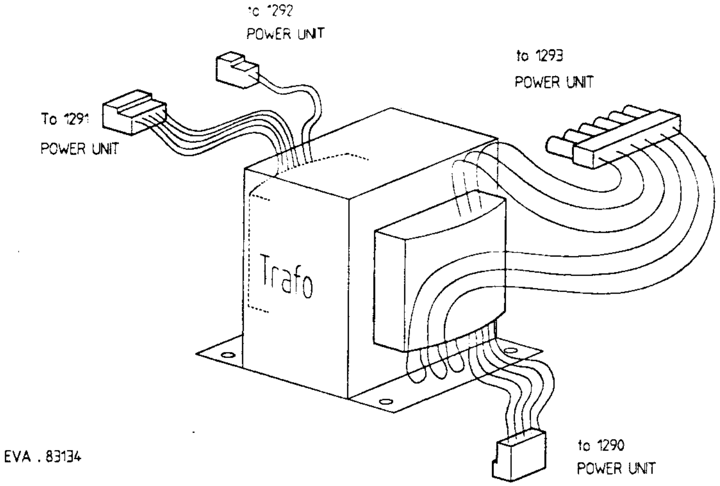
273
1682
250
251
200
270
253
262
Karaoke
261
PHILIPS
257
260
295
3X12
504
255
Primair power
1462
1458
3X12
1463
1551
3X12
56
Selector
3790
Spectrum analizer
3X12
514
333
1111
3X12
Tuner unit
1110
1101
274
288
513
286
263
285
287
233
203
M3X6
1270
1261
Supply
Relay
1271
5250
219
237
M3X6
204
Power unit
M3X10
M3X6
M3X6
M3X6
M3X10
503
Trafo
5001
512
502
510
500
M3X6

MECHANICAL PARTS

56	4822 290 81515	TERMINAL
200	4822 426 51572	FRONT ASSY
203	4822 426 20215	BACKSIDE ASSY
204	4822 462 41933	FOOT
219	4822 404 21242	PRESS BRACKET
233	4822 502 13921	GND TERMINAL
237	4822 466 62233	INSOLAT. PLATE
248	4822 492 71139	EAETH SPRING
250	4822 410 62079	SEL.BUTTON ASSY
251	4822 410 62027	DBB BUTTON
253	4822 466 93146	DBB DSP S.PLATE
255	4822 535 93321	POWER ROD
257	4822 459 11078	WORKMARK
260	4822 413 51415	VOL.KNOB ASSY
261	4822 450 61942	WINDOW ASSY AMPL.
262	4822 450 61909	IR WINDOW ASSY
263	4822 462 71849	TERMINAL
270	4822 450 61893	WINDOW TUNER
271	4822 410 62122	BUTTON TIMER ASSY
272	4822 410 62123	DISPLAY BUTTON ASSY
273	4822 410 62084	BUTTON PRESET ASSY
274	4822 404 21246	SUPPORTING PIECE
285	4822 423 41181	BATTERY COVER
286	4822 492 63982	BATTERY CONTACT
287	4822 492 71116	BATTERY SPRING
288	4822 492 70868	BATTERY SPRING +
292	4822 466 30424	FTD SCREEN PLATE
333	4822 321 10249	CORD SET
1101	4822 210 10491	TUNER
1101	4822 210 10492	TUNER /02
1110	4822 267 10283	FM ANT.SOCKET
1111	4822 267 31505	AM ANT.SOCKET
1261	4822 267 20432	PUCH TERMINAL 4X2P
1270	4822 267 31383	MAINS SOCKET
1271	4822 276 13277	POWER SWITCH
1458	4822 267 60331	CONNECTOR BMT 19 P.
1462	4822 267 31503	PIN JACK 2F.
1463	4822 267 31504	PIN JACK 2F.
1551	4822 267 51159	PIN JACK 8F.
1681	4822 130 91122	DISPLAY TUNER
1682	4822 130 91153	DISPLAY AMPL.
1710	4822 267 31519	HAEDPHONE SOCKET
3790	4822 102 10414	VOLUME ASSY 2X20k
5001	4822 146 31161	MAINS TRAFO
5001	4822 146 31156	MAINS TRAFO /01
5001	4822 146 31158	MAINS TRAFO /10
5250	4822 280 70368	RELAY
6652	4822 214 52009	IR EYE GP1U58XP

MAINS TRAFO DIAGRAM



TUNER PART

MISCELLANEOUS

1101	4822 210 10491	TUNER FEE337-A05
1101	4822 210 10492	TUNER FE415-G11/02
1110	4822 267 10283	FM ANT SOCKET
1111	4822 267 31505	AM ANT SOCKET

CAPACITORS

2101	5322 122 34099	470pF 10% 63V
2102	5322 122 32268	470pF 10% 50V /02
2103	4822 124 40433	47µF 20% 25V
2104	4822 121 42408	220nF 5% 63V
2105	5322 122 32287	4,7pF 5% 50V
2105	5322 122 32965	18pF 5%NPO 50V /02
2107	4822 122 10225	82pF 5% 50V
2107	4822 122 31385	22pF 50V /02
2108	5322 122 32654	22nF 10% 63V
2109	5322 122 32654	22nF 10% 63V
2110	5322 122 32654	22nF 10% 63V
2112	5322 122 32654	22nF 10% 63V
2113	5322 122 32661	56pF 5% 50V
2114	5322 124 41431	22µF 20% 35V
2115	4822 124 40239	0,47µF 20% 63V
2116	5322 121 42386	100nF 5% 63V
2117	4822 121 41935	12nF 5% 250V
2117	4822 121 43179	18nF 5% 250V /17
2118	4822 121 41935	12nF 5% 250V
2118	4822 121 43179	18nF 5% 250V /17
2119	4822 124 40244	2,2µF 20% 63V
2120	4822 124 40244	2,2µF 20% 63V
2121	4822 124 40196	220µF 20% 16V
2123	4822 124 40246	4,7µF 20% 63V
2124	4822 124 40246	4,7µF 20% 63V
2125	4822 122 33177	10nF 20% 50V
2126	4822 122 31782	15000pF 10% 50V
2129	4822 124 40242	1µF 20% 63V
2131	4822 124 40435	10µF 20% 50V
2140	4822 125 60102	TRIMMER 30pF
2141	4822 125 60101	TRIMMER 10pF
2142	4822 125 60102	TRIMMER 30pF
2143	5322 122 32269	6,8pF 5% 50V
2144	4822 121 42408	220nF 5% 63V
2145	4822 121 51263	510pF 1% 400V
2145	4822 121 51381	560pF 5% 400V /17
2146	4822 121 70082	430pF 1% 400V
2147	5322 122 32654	22nF 10% 63V
2148	5322 122 32452	47pF 5% 63V
2149	4822 122 33177	10nF 20% 50V
2150	5322 122 32654	22nF 10% 63V
2151	5322 122 34099	470pF 10% 63V
2152	4822 124 40242	1µF 20% 63V
2153	5322 122 34099	470pF 10% 63V
2154	5322 122 32481	15pF 5% 50V
2155	5322 122 32965	18pF 5%NPO 50V
2156	4822 124 40433	47µF 20% 25V
2158	5322 126 10223	4,7nF 10% 63V
2159	5322 126 10223	4,7nF 10% 63V
2160	4822 124 41631	1,5µF 50V
2161	4822 122 32927	220nF
2162	4822 122 10166	22nF 30% 16V
2165	4822 124 40433	47µF 20% 25V
2196	5322 122 32448	10pF 5% 50V
2197	4822 122 33804	27pF 5% 50V /17
2210	4822 124 41643	100µF 20% 16V
2215	5322 122 32268	470pF 10% 50V /02
2216	5322 122 32268	470pF 10% 50V /02
2219	4822 122 32927	220nF
2221	5322 122 32268	470pF 10% 50V /02
2222	5322 122 32268	470pF 10% 50V
2223	4822 122 32927	220nF
2224	4822 122 32575	220pF 10% 500V
2225	4822 122 32575	220pF 10% 500V

RESISTORS

3100	4822 050 21501	150Ω 1% 0,6W
3101	4822 050 21501	150Ω 1% 0,6W
3102	4822 051 20224	220k 5% 0,1W /02
3103	4822 051 20008	0Ω 5% 0,1W
3104	4822 051 20008	0Ω 5% 0,1W
3104	4822 051 20154	150k 5% 0,1W /02
3105	4822 051 20562	5k6 5% 0,1W
3106	4822 051 20829	82Ω 5% 0,1W
3107	4822 051 20104	100k 5% 0,1W
3108	4822 050 24701	470Ω 1% 0,6W
3113	4822 053 10221	220Ω 5% 1W
3114	4822 051 20472	4k7 5% 0,1W
3115	4822 051 20391	390Ω 5% 0,1W
3116	4822 051 20478	4Ω7 5% 0,1W
3117	4822 051 20331	330Ω 5% 0,1W
3118	4822 116 52215	220Ω 5% 0,5W
3120	4822 052 10339	33Ω 5% 0,33W
3121	4822 051 20272	2k7 5% 0,1W
3122	4822 051 20562	5k6 5% 0,1W
3123	4822 051 20223	22k 5% 0,1W
3124	4822 051 20103	10k 5% 0,1W
3125	4822 100 11213	TRIMMER 22k 30%
3126	4822 051 20123	12k 5% 0,1W
3127	4822 051 20562	5k6 5% 0,1W
3128	4822 051 20562	5k6 5% 0,1W

9	4822 051 20103	10k 5% 0,1W
1	4822 100 11319	TRIMMER 4k7
2	4822 051 20103	10k 5% 0,1W
3	4822 051 20008	0Ω 5% 0,1W
4	4822 050 15602	5k6 1% 0,4W
5	4822 051 10008	0Ω 5% 0,25W
0	4822 051 20821	820Ω 5% 0,1W
1	4822 051 20182	1k8 5% 0,1W
2	4822 051 20472	4k7 5% 0,1W
3	4822 051 20821	820Ω 5% 0,1W
44	4822 051 20331	330Ω 5% 0,1W
45	4822 051 20271	270Ω 5% 0,1W
46	4822 053 10151	150Ω 5% 1W
47	4822 050 15602	5k6 1% 0,4W
48	4822 051 20104	100k 5% 0,1W
49	4822 051 20472	4k7 5% 0,1W
50	4822 050 25601	560Ω 1% 0,6W
51	4822 050 24702	4k7 1% 0,6W
52	4822 051 20103	10k 5% 0,1W
53	4822 051 20008	0Ω 5% 0,1W /17
54	4822 051 20008	0Ω 5% 0,1W /17
55	4822 050 22201	220Ω 1% 0,6W
56	4822 051 20153	15k 5% 0,1W
57	4822 051 20472	4k7 5% 0,1W
58	4822 050 24702	4k7 1% 0,6W
59	4822 051 20104	100k 5% 0,1W
160	4822 051 20104	100k 5% 0,1W
162	4822 050 23901	390Ω 1% 0,6W
163	4822 051 20103	10k 5% 0,1W
164	4822 051 20473	47k 5% 0,1W
165	4822 050 21002	1k 1% 0,6W
166	4822 050 21002	1k 1% 0,6W
167	4822 050 21002	1k 1% 0,6W
170	4822 051 20223	22k 5% 0,1W
171	4822 051 20103	10k 5% 0,1W
172	4822 051 20472	4k7 5% 0,1W
173	4822 051 20223	22k 5% 0,1W
183	4822 050 21003	10k 1% 0,6W
184	4822 051 20332	3k3 5% 0,1W
185	4822 051 20103	10k 5% 0,1W
186	4822 050 21003	10k 1% 0,6W
187	4822 051 20103	10k 5% 0,1W
190	4822 051 20479	47Ω 5% 0,1W
194	4822 051 20472	4k7 5% 0,1W
196	4822 051 20008	0Ω 5% 0,1W
3197	4822 051 20008	0Ω 5% 0,1W
3198	4822 051 20103	10k 5% 0,1W
3200	4822 051 20008	0Ω 5% 0,1W
3202	4822 051 20008	0Ω 5% 0,1W
3223	4822 051 20474	470k 5% 0,1W
3225	4822 050 21002	1k 1% 0,6W
3230	4822 051 20223	22k 5% 0,1W
3231	4822 051 20223	22k 5% 0,1W
3233	4822 051 10102	1k 2% 0,25W

3236	4822 051 20008	0Ω 5% 0,1W
3240	4822 051 20182	1k8 5% 0,1W
3241	4822 051 20008	0Ω 5% 0,1W

COILS

5101	4822 157 53192	0,22μH 20%
5103	4822 242 81249	CER TER 10,7MHz
5104	4822 157 63029	IFT AM
5105	4822 157 63904	DET COIL
5106	4822 157 63802	BIRDY TER
5107	4822 157 63799	MW AERIAL COIL
5107	4822 157 63835	MW AERIAL COIL /17
5108	4822 157 63912	AM OSC
5108	4822 157 63836	AM OSC /17
5109	4822 157 63801	LW AERIAL COIL
5110	4822 242 71878	CER TER 450kHZ
5111	4822 242 81248	CER RES 19kHZ
5112	4822 242 72976	X'TAL RES 7.2MHz
5113	4822 242 81249	SFE10,7MS3GH-A
5114	4822 152 20699	560μH

DIODES

6101	4822 130 34174	BZX79-C4V7
6102	4822 130 83075	HN1V02H
6109	4822 130 30621	1N4148
6121	4822 130 30621	1N4148 /17
6123	4822 130 30621	1N4148 /17

TRANSISTORS & IC's

7101	4822 130 60163	2SC1047
7103	4822 209 31001	LA1851N
7104	5322 130 60068	BC558C
7105	4822 209 30178	LC7218
7106	5322 130 60068	BC558C
7107	5322 130 41982	BC848B
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7110	5322 130 44779	BC338-40
7111	5322 130 41982	BC848B
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	5322 130 44779	BC338-40
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7119	5322 130 41983	BC858B
7120	4822 130 44196	BC548C
7150	5322 130 44779	BC338-40
7157	5322 130 44779	BC338-40

2359	4822 124 41334	470μF 20% 35V
2360	4822 124 80194	100μF 20% 100V
2361	4822 122 10158	1nF 10% 50V
2362	4822 122 10158	1nF 10% 50V
2363	4822 124 42119	4700μF 20% 25V
2364	4822 124 42118	1000μF 20% 25V
2365	4822 121 43526	47nF 5% 100V
2366	4822 121 43526	47nF 5% 100V
2367	4822 121 43526	47nF 5% 100V
2368	4822 124 40244	2,2μF 20% 63V
2369	4822 124 40177	47μF 20% 10V
2370	4822 124 40177	47μF 20% 10V
2371	4822 124 40242	1μF 20% 63V
2372	4822 124 41584	100μF 20% 10V
2451	5322 122 32531	100pF 5% 50V
2452	5322 122 32531	100pF 5% 50V
2453	4822 124 40242	1μF 20% 63V
2454	4822 124 40242	1μF 20% 63V
2455	5322 122 32531	100pF 5% 50V
2456	5322 122 32531	100pF 5% 50V
2457	5322 116 80853	560pF 5% 63V
2458	5322 116 80853	560pF 5% 63V
2459	4822 124 40435	10μF 20% 50V
2460	4822 124 40435	10μF 20% 50V
2461	4822 122 33177	10nF 20% 50V
2462	4822 122 33177	10nF 20% 50V
2463	5322 126 10223	4,7nF 10% 63V
2464	5322 126 10223	4,7nF 10% 63V
2465	4822 124 40435	10μF 20% 50V
2466	4822 124 40435	10μF 20% 50V
2467	4822 124 40433	47μF 20% 25V
2468	4822 124 40433	47μF 20% 25V
2469	5322 122 32654	22nF 10% 63V
2470	5322 122 32654	22nF 10% 63V
2471	4822 124 40242	1μF 20% 63V
2472	4822 124 40242	1μF 20% 63V
2473	5322 122 31946	27pF 10% 50V
2474	5322 122 31946	27pF 10% 50V
2475	5322 116 80853	560pF 5% 63V
2476	5322 116 80853	560pF 5% 63V
2477	4822 124 40433	47μF 20% 25V
2478	4822 124 40433	47μF 20% 25V
2479	4822 124 40433	47μF 20% 25V
2480	4822 124 40433	47μF 20% 25V
2481	5322 122 32654	22nF 10% 63V
2482	5322 122 32654	22nF 10% 63V
2483	4822 124 40433	47μF 20% 25V
2484	4822 124 40433	47μF 20% 25V
2485	5322 122 32654	22nF 10% 63V
2486	5322 122 32654	22nF 10% 63V
2487	4822 122 33342	33nF 10% 63V
2551	4822 122 33175	2,2nF 20% 50V
2574	4822 124 40435	10μF 20% 50V
2575	5322 122 32531	100pF 5% 50V

2576	5322 122 32531	100pF 5% 50V
2577	5322 116 80853	560pF 5% 63V
2578	5322 116 80853	560pF 5% 63V
2579	5322 126 10223	4,7nF 10% 63V
2580	5322 126 10223	4,7nF 10% 63V
2581	4822 124 40435	10μF 20% 50V
2582	4822 124 40435	10μF 20% 50V
2585	4822 122 33342	33nF 10% 63V
2586	4822 122 33496	100nF 10% 63V
2587	4822 124 40242	1μF 20% 63V
2588	5322 116 80853	560pF 5% 63V
2589	5322 116 80853	560pF 5% 63V
2590	5322 116 80853	560pF 5% 63V
2591	4822 124 40246	4,7μF 20% 63V
2592	4822 124 40246	4,7μF 20% 63V
2593	5322 122 32531	100pF 5% 50V
2594	5322 122 32531	100pF 5% 50V
2595	4822 122 32542	47nF 10% 63V
2596	4822 122 32542	47nF 10% 63V
2597	4822 124 40246	4,7μF 20% 63V
2598	4822 124 40246	4,7μF 20% 63V
2599	4822 124 40433	47μF 20% 25V
2601	5322 122 31865	1,5nF 10% 63V
2602	5322 122 31865	1,5nF 10% 63V
2603	4822 122 33891	3,3nF 10% 63V
2604	4822 122 33891	3,3nF 10% 63V
2605	4822 122 33336	8,2nF 10% 50V
2606	4822 122 33336	8,2nF 10% 50V
2607	5322 122 32654	22nF 10% 63V
2608	5322 122 32654	22nF 10% 63V
2609	4822 122 33105	56nF 10% 63V
2610	4822 122 33105	56nF 10% 63V
2611	4822 126 11691	150nF 10%
2612	4822 126 11691	150nF 10%
2613	5322 121 42661	330nF 5% 63V
2614	5322 121 42661	330nF 5% 63V
2615	5322 126 10223	4,7nF 10% 63V
2616	5322 126 10223	4,7nF 10% 63V
2617	5322 122 31866	6,8nF 10% 63V
2618	5322 122 31866	6,8nF 10% 63V
2619	4822 122 33893	18nF 10% 63V
2620	4822 122 33893	18nF 10% 63V
2621	4822 122 33608	39nF 10% 63V
2622	4822 122 33608	39nF 10% 63V
2623	4822 122 33496	100nF 10% 63V
2624	4822 122 33496	100nF 10% 63V
2625	4822 121 41738	270nF 5% 63V
2626	4822 121 41738	270nF 5% 63V
2627	5322 121 42498	680nF 5% 63V
2628	5322 121 42498	680nF 5% 63V
2629	5322 122 34099	470pF 10% 63V
2630	5322 122 34099	470pF 10% 63V
2631	4822 122 31797	22nF 10% 63V
2632	4822 122 31797	22nF 10% 63V

RECEIVER PART

MISCELLANEOUS

1250	4822 071 53152	1FUSE T 3.15A
1251	4822 071 53152	1FUSE T 3.15A
1261	4822 267 20432	TERMINAL 4X2P
1270	4822 267 31383	MAINS SOCKET
1271	4822 276 13277	POWER SWITCH
1291	4822 265 31001	SOCKET
1350	4822 071 51602	FUSE T 1.6A
1351	4822 071 51602	FUSE T 1.6A
1352	4822 071 51602	FUSE T 1.6A
1353	4822 071 51602	FUSE T 1.6A
1354	4822 071 56301	FUSE T 630MA
1458	4822 267 60331	CONNECTOR BMT 19 P.
1462	4822 267 31503	PIN JACK 2F.
1463	4822 267 31504	PIN JACK 2F.
1551	4822 267 51159	PIN JACK 8F.
1650	4822 276 13114	TACT SWITCH
1651	4822 276 13114	TACT SWITCH
1652	4822 276 13114	TACT SWITCH
1653	4822 276 13114	TACT SWITCH
1654	4822 276 13114	TACT SWITCH
1655	4822 276 13106	TACT SWITCH
1656	4822 276 13106	TACT SWITCH
1658	4822 276 13106	TACT SWITCH
1660	4822 276 13106	TACT SWITCH
1661	4822 276 13106	TACT SWITCH
1662	4822 276 13114	TACT SWITCH
1663	4822 276 13114	TACT SWITCH
1664	4822 276 13114	TACT SWITCH
1665	4822 276 13114	TACT SWITCH
1666	4822 276 13106	TACT SWITCH
1667	4822 276 13106	TACT SWITCH
1668	4822 276 13106	TACT SWITCH
1669	4822 276 13106	TACT SWITCH
1670	4822 276 13106	TACT SWITCH
1671	4822 276 13106	TACT SWITCH
1672	4822 276 13106	TACT SWITCH
1674	4822 276 13106	TACT SWITCH
1675	4822 276 13106	TACT SWITCH
1676	4822 276 13106	TACT SWITCH
1677	4822 276 13106	TACT SWITCH
1678	4822 276 13106	TACT SWITCH
1681	4822 130 91122	DISPLAY TUNER
1683	4822 130 91153	DISPLAY AMPL.
1700	4822 280 10195	BUZZER
1710	4822 267 31519	HAEDPHONE SOCKET

CAPACITORS

2250	4822 124 40242	1μF 20% 63V
2251	4822 124 40242	1μF 20% 63V
2252	4822 122 10183	100pF 5% 50V
2253	4822 122 10183	100pF 5% 50V
2254	4822 122 10183	100pF 5% 50V
2255	4822 122 10183	100pF 5% 50V
2256	4822 122 31435	470pF 10% 50V
2257	4822 122 31435	470pF 10% 50V
2258	4822 124 40196	220μF 20% 16V
2259	4822 124 40196	220μF 20% 16V
2260	4822 124 41643	100μF 20% 16V
2261	4822 124 41643	100μF 20% 16V
2264	4822 126 11307	180pF 10% 500V
2265	4822 126 11307	180pF 10% 500V
2268	4822 122 10173	820pF 10% 50V
2269	4822 122 10173	820pF 10% 50V
2270	4822 124 41525	100μF 20% 25V
2271	4822 124 41525	100μF 20% 25V
2274	4822 126 11308	47pF 5% 500V
2275	4822 126 11308	47pF 5% 500V
2276	4822 124 41584	100μF 20% 10V
2277	4822 124 41584	100μF 20% 10V
2278	4822 124 41596	22μF 20% 50V
2279	4822 124 41596	22μF 20% 50V
2280	4822 124 40242	1μF 20% 63V
2281	4822 124 40242	1μF 20% 63V
2284	4822 121 43526	47nF 5% 100V
2285	4822 121 43526	47nF 5% 100V
2286	4822 122 10176	4,7nF 10% 50V
2287	4822 122 10176	4,7nF 10% 50V
2288	4822 122 10176	4,7nF 10% 50V
2289	4822 122 10176	4,7nF 10% 50V
2290	4822 122 10166	22nF 30% 16V
2292	5322 121 42386	100nF 5% 63V
2293	4822 124 40435	10μF 20% 50V
2296	4822 124 40239	0,47μF 20% 63V
2300	4822 124 42117	4700μF 20% 50V
2301	4822 124 42117	4700μF 20% 50V
2304	4822 121 43526	47nF 5% 100V
2305	4822 121 43526	47nF 5% 100V
2306	4822 121 43526	47nF 5% 100V
2350	4822 124 42121	4700μF 35V
2351	4822 124 41334	470μF 20% 35V
2352	5322 124 21189	100μF 20% 40V
2353	4822 124 40433	47μF 20% 25V
2354	4822 122 10158	1nF 10% 50V
2355	4822 124 41525	100μF 20% 25V
2356	4822 124 40433	47μF 20% 25V
2357	4822 122 10158	1nF 10% 50V
2358	4822 124 41334	470μF 20% 35V

2633	4822 122 31797	22nF 10% 63V
2634	4822 122 31797	22nF 10% 63V
2635	4822 124 40246	4,7μF 20% 63V
2636	4822 124 40246	4,7μF 20% 63V
2637	4822 124 40246	4,7μF 20% 63V
2638	4822 124 40246	4,7μF 20% 63V
2639	4822 124 40433	47μF 20% 25V
2640	4822 124 40433	47μF 20% 25V
2641	4822 124 40433	47μF 20% 25V
2642	4822 124 40433	47μF 20% 25V
2645	5322 122 32658	22pF 5% 50V
2646	5322 122 32658	22pF 5% 50V
2647	5322 122 32531	100pF 5% 50V
2648	5322 122 32531	100pF 5% 50V
2649	5322 116 80853	560pF 5% 63V
2650	4822 121 51252	470nF 5% 63V
2651	4822 124 23178	47μF 20% 16V
2652	4822 126 11585	22nF
2653	4822 121 42408	220nF 5% 63V
2654	4822 121 51387	10nF 20% 16V
2655	4822 126 11585	22nF
2656	4822 124 80195	470μF 20% 10V
2658	5322 121 42386	100nF 5% 63V
2661	4822 122 33191	22pF 5% 50V
2662	4822 122 33191	22pF 5% 50V
2671	4822 121 51252	470nF 5% 63V
2672	4822 121 51252	470nF 5% 63V
2673	4822 121 51252	470nF 5% 63V
2674	4822 121 51252	470nF 5% 63V
2679	5322 121 42386	100nF 5% 63V
2684	4822 122 10459	560pF 10% 50V
2685	4822 122 10459	560pF 10% 50V
2761	4822 122 10459	560pF 10% 50V
2765	4822 124 41525	100μF 20% 25V
2766	4822 124 40246	4,7μF 20% 63V
2767	4822 124 40246	4,7μF 20% 63V
2768	4822 124 40435	10μF 20% 50V
2769	4822 124 40435	10μF 20% 50V
2770	4822 124 40435	10μF 20% 50V
2785	4822 124 41525	100μF 20% 25V
2787	4822 124 40435	10μF 20% 50V
2788	4822 124 41525	100μF 20% 25V
2789	4822 124 41525	100μF 20% 25V
2790	5322 121 42661	330nF 5% 63V
2791	4822 121 51387	10nF 20% 16V
2792	4822 121 51387	10nF 20% 16V
2795	4822 121 51356	180nF 10% 63V
2796	4822 121 51356	180nF 10% 63V
2797	4822 124 40435	10μF 20% 50V

RESISTORS

3250	4822 116 52303	8k2 5% 0,5W
3251	4822 116 52303	8k2 5% 0.5W
3258	4822 050 22203	22k 1% 0,6W
3259	4822 050 22203	22k 1% 0,6W
3260	4822 050 21002	1k 1% 0,6W
3261	4822 050 21002	1k 1% 0,6W
3262	4822 116 52224	470Ω 5% 0,5W
3263	4822 116 52224	470Ω 5% 0,5W
3264	4822 116 52217	270Ω 5% 0,5W
3265	4822 116 52217	270Ω 5% 0,5W
3268	4822 050 22203	22k 1% 0,6W
3269	4822 050 22203	22k 1% 0,6W
3270	4822 053 10122	1k2 5% 1W
3271	4822 053 10122	1k2 5% 1W
3272	4822 050 26801	680Ω 1% 0,6W
3273	4822 050 26801	680Ω 1% 0,6W
3274	4822 050 22202	2k2 1% 0,6W
3275	4822 050 22202	2k2 1% 0,6W
3276	4822 050 16809	68Ω 1% 0,4W
3277	4822 050 16809	68Ω 1% 0,4W
3278	4822 053 12152	1k5 5% 3W
3279	4822 053 12152	1k5 5% 3W
3280	4822 050 21502	1k5 1% 0,6W
3281	4822 050 21502	1k5 1% 0,6W
3282	4822 116 52263	2k7 5% 0,5W
3283	4822 116 52263	2k7 5% 0,5W
3284	4822 100 11677	470Ω 30%LIN 0.2W
3285	4822 100 11677	470Ω 30%LIN 0.2W
3286	4822 051 10561	560Ω 2% 0,25W
3287	4822 051 10561	560Ω 2% 0,25W
3288	4822 050 23002	3k 1% 0,6W
3289	4822 050 23002	3k 1% 0,6W
3290	4822 053 10222	2k2 5% 1W
3291	4822 053 10222	2k2 5% 1W
3294	4822 116 52217	270Ω 5% 0,5W
3295	4822 116 52217	270Ω 5% 0,5W
3296	4822 116 52217	270Ω 5% 0,5W
3297	4822 116 52217	270Ω 5% 0.5W
3298	4822 116 52224	470Ω 5% 0,5W
3299	4822 116 52224	470Ω 5% 0,5W
3300	4822 116 52224	470Ω 5% 0,5W
3301	4822 116 52224	470Ω 5% 0.5W
3302	4822 113 80598	0Ω22 5% 3W
3303	4822 113 80598	0Ω22 5% 3W
3304	4822 113 80598	0Ω22 5% 3W
3305	4822 113 80598	0Ω22 5% 3W
3312	4822 052 10279	27Ω 5% 0,33W
3313	4822 052 10279	27Ω 5% 0,33W
3314	4822 052 10109	10Ω 5% 0,33W
3315	4822 052 10109	10Ω 5% 0,33W

3316	4822 052 10478	4Ω7	5%	0,33W
3317	4822 052 10478	4Ω7	5%	0,33W
3318	4822 050 21002	1k	1%	0,6W
3319	4822 050 21002	1k	1%	0,6W
3320	4822 116 52234	100k	5%	0,5W
3321	4822 116 52234	100k	5%	0,5W
3322	4822 050 22203	22k	1%	0,6W
3323	4822 050 22203	22k	1%	0,6W
3324	4822 051 10101	100Ω	2%	0,25W
3325	4822 051 10101	100Ω	2%	0,25W
3330	4822 116 52234	100k	5%	0,5W
3331	4822 050 26803	68k	1%	0,6W
3332	4822 050 22203	22k	1%	0,6W
3333	4822 050 21501	150Ω	1%	0,6W
3334	4822 050 24702	4k7	1%	0,6W
3335	4822 050 24703	47k	1%	0,6W
3336	4822 050 22203	22k	1%	0,6W
3340	4822 113 80607	330Ω	5%	
3341	4822 113 80607	330Ω	5%	
3342	4822 050 21801	180Ω	1%	0,6W
3343	4822 050 21801	180Ω	1%	0,6W
3350	4822 050 21802	1k8	1%	0,6W
3351	4822 050 21202	1k2	1%	0,6W
3352	4822 052 10479	47Ω	5%	0,33W
3353	4822 050 22202	2k2	1%	0,6W
3354	4822 052 10478	4Ω7	5%	0,33W
3355	4822 050 21003	10k	1%	0,6W
3356	4822 050 24702	4k7	1%	0,6W
3357	4822 050 23302	3k3	1%	0,6W
3358	4822 052 10479	47Ω	5%	0,33W
3359	4822 050 21502	1k5	1%	0,6W
3361	4822 050 26802	6k8	1%	0,6W
3362	4822 053 10229	22Ω	5%	1W
3363	4822 053 10229	22Ω	5%	1W
3364	4822 050 21003	10k	1%	0,6W
3365	4822 050 23903	39k	1%	0,6W
3367	4822 050 25602	5k6	1%	0,6W
3368	4822 052 10229	22Ω	5%	0,33W
3369	4822 050 24703	47k	1%	0,6W
3370	4822 050 24702	4k7	1%	0,6W
3371	4822 050 24703	47k	1%	0,6W
3372	4822 050 24703	47k	1%	0,6W
3373	4822 050 21803	18k	1%	0,6W
3374	4822 051 10101	100Ω	2%	0,25W
3375	4822 050 22203	22k	1%	0,6W
3376	4822 050 22203	22k	1%	0,6W
3377	4822 050 22203	22k	1%	0,6W
3378	4822 050 21003	10k	1%	0,6W
3379	4822 050 22202	2k2	1%	0,6W
3385	4822 050 22203	22k	1%	0,6W
3386	4822 052 10688	6Ω8	5%	0,33W
3387	4822 050 21002	1k	1%	0,6W
3388	4822 052 10688	6Ω8	5%	0,33W
3451	4822 050 23901	390Ω	1%	0,6W

3452	4822 050 23901	390Ω	1%	0,6W
3453	4822 050 13304	330k	1%	0,4W
3454	4822 050 13304	330k	1%	0.4W
3455	4822 050 15603	56k	1%	0.4W
3456	4822 050 15603	56k	1%	0.4W
3457	4822 050 23901	390Ω	1%	0.6W
3458	4822 050 23901	390Ω	1%	0,6W
3459	4822 050 21001	100Ω	1%	0,6W
3460	4822 050 21001	100Ω	1%	0,6W
3461	4822 050 25601	560Ω	1%	0,6W
3462	4822 050 25601	560Ω	1%	0,6W
3463	4822 050 13304	330k	1%	0,4W
3464	4822 050 13304	330k	1%	0,4W
3465	4822 050 12703	27k	1%	0,4W
3466	4822 050 12703	27k	1%	0,4W
3467	4822 116 52306	9k1	5%	0,5W
3468	4822 116 52306	9k1	5%	0,5W
3469	4822 116 52247	16k	5%	0,5W
3470	4822 116 52247	16k	5%	0.5W
3471	4822 116 52217	270Ω	5%	0,5W
3472	4822 116 52217	270Ω	5%	0,5W
3473	4822 050 22203	22k	1%	0,6W
3474	4822 050 22203	22k	1%	0,6W
3475	4822 050 22003	20k	1%	0,6W
3476	4822 050 22003	20k	1%	0,6W
3477	4822 051 20223	22k	5%	0,1W
3478	4822 050 22203	22k	1%	0,6W
3479	4822 051 20562	5k6	5%	0,1W
3480	4822 051 20562	5k6	5%	0,1W
3481	4822 116 52256	2k2	5%	0,5W
3482	4822 116 52256	2k2	5%	0,5W
3483	4822 116 52257	22k	5%	0,5W
3484	4822 116 52257	22k	5%	0,5W
3485	4822 116 52257	22k	5%	0,5W
3486	4822 116 52257	22k	5%	0,5W
3487	4822 050 21003	10k	1%	0.6W
3488	4822 050 21003	10k	1%	0,6W
3489	4822 050 21003	10k	1%	0.6W
3490	4822 050 21003	10k	1%	0,6W
3491	4822 116 52233	10k	5%	0.5W
3492	4822 116 52233	10k	5%	0,5W
3493	4822 050 21203	12k	1%	0,6W
3494	4822 050 21203	12k	1%	0.6W
3495	4822 116 52256	2k2	5%	0,5W
3496	4822 116 52256	2k2	5%	0,5W
3497	4822 116 52217	270Ω	5%	0.5W
3498	4822 116 52217	270Ω	5%	0,5W
3499	4822 116 52269	3k3	5%	0,5W
3500	4822 050 24701	470Ω	1%	0.6W
3501	4822 051 20223	22k	5%	0,1W
3502	4822 051 20223	22k	5%	0,1W
3503	4822 051 20104	100k	5%	0.1W
3504	4822 051 20104	100k	5%	0,1W
3505	4822 051 20683	68k	5%	0.1W

3506	4822 050 26803	68k	1%	0,6W
3507	4822 051 20561	560Ω	5%	0,1W
3508	4822 050 25601	560Ω	1%	0,6W
3509	4822 051 20104	100k	5%	0,1W
3511	4822 116 52217	270Ω	5%	0,5W
3512	4822 116 52217	270Ω	5%	0,5W
3513	4822 051 20392	3k9	5%	0,1W
3514	4822 051 20392	3k9	5%	0,1W
3563	4822 116 52263	2k7	5%	0,5W
3564	4822 116 52263	2k7	5%	0,5W
3575	4822 051 10102	1k	2%	0,25W
3576	4822 051 10102	1k	2%	0,25W
3577	4822 051 20103	10k	5%	0,1W
3578	4822 051 20103	10k	5%	0,1W
3579	4822 116 52217	270Ω	5%	0,5W
3580	4822 116 52217	270Ω	5%	0,5W
3581	4822 050 21003	10k	1%	0,6W
3582	4822 051 10106	10M	5%	0,25W
3583	4822 051 20104	100k	5%	0,1W
3584	4822 051 20473	47k	5%	0,1W
3601	4822 116 52238	12k	5%	0,5W
3602	4822 116 52238	12k	5%	0,5W
3603	4822 051 20123	12k	5%	0,1W
3604	4822 051 20123	12k	5%	0,1W
3605	4822 050 21003	10k	1%	0,6W
3606	4822 051 20103	10k	5%	0,1W
3607	4822 051 20474	470k	5%	0,1W
3608	4822 051 20474	470k	5%	0,1W
3609	4822 051 20474	470k	5%	0,1W
3610	4822 051 20474	470k	5%	0,1W
3611	4822 051 20474	470k	5%	0,1W
3612	4822 051 20474	470k	5%	0,1W
3613	4822 051 20474	470k	5%	0,1W
3614	4822 051 20474	470k	5%	0,1W
3615	4822 051 20474	470k	5%	0,1W
3616	4822 051 20474	470k	5%	0,1W
3617	4822 051 20474	470k	5%	0,1W
3618	4822 051 20474	470k	5%	0,1W
3619	4822 051 20474	470k	5%	0,1W
3620	4822 051 20474	470k	5%	0,1W
3621	4822 052 10159	15Ω	5%	0,33W
3622	4822 052 10159	15Ω	5%	0,33W
3623	4822 051 20104	100k	5%	0,1W
3624	4822 051 20104	100k	5%	0,1W
3625	4822 051 20104	100k	5%	0,1W
3626	4822 051 20104	100k	5%	0,1W
3627	4822 051 20104	100k	5%	0,1W
3628	4822 051 20104	100k	5%	0,1W
3629	4822 052 10159	15Ω	5%	0,33W
3630	4822 052 10159	15Ω	5%	0,33W
3631	4822 051 20104	100k	5%	0,1W
3632	4822 051 20104	100k	5%	0,1W
3633	4822 051 20104	100k	5%	0,1W
3634	4822 051 20104	100k	5%	0,1W

3637	4822 116 52269	3k3	5%	0,5W
3638	4822 051 20109	10Ω	5%	0,1W
3639	4822 051 20008	0Ω	5%	0.1W
3650	4822 116 52233	10k	5%	0,5W
3651	4822 116 52234	100k	5%	0.5W
3653	4822 052 10478	4Ω7	5%	0,33W
3654	4822 116 52284	47k	5%	0,5W
3655	4822 116 52284	47k	5%	0,5W
3656	4822 116 52284	47k	5%	0,5W
3657	4822 116 52251	18k	5%	0,5W
3658	4822 116 52283	4k7	5%	0,5W
3659	4822 116 52233	10k	5%	0,5W
3660	4822 116 52219	330Ω	5%	0,5W
3661	4822 116 52233	10k	5%	0,5W
3666	4822 050 11002	1k	1%	0,4W
3667	4822 050 11002	1k	1%	0,4W
3669	4822 050 11002	1k	1%	0,4W
3671	4822 116 52256	2k2	5%	0,5W
3672	4822 116 52256	2k2	5%	0,5W
3673	4822 116 52233	10k	5%	0,5W
3674	4822 116 52296	6k8	5%	0,5W
3675	4822 116 52224	470Ω	5%	0,5W
3676	4822 050 16802	6k8	1%	0,4W
3680	4822 050 24702	4k7	1%	0,6W
3682	4822 050 11002	1k	1%	0,4W
3683	4822 050 11002	1k	1%	0,4W
3684	4822 050 11002	1k	1%	0,4W
3685	4822 050 11002	1k	1%	0,4W
3688	4822 116 52233	10k	5%	0,5W
3689	4822 116 52304	82k	5%	0,5W
3696	4822 116 52233	10k	5%	0,5W
3697	4822 116 52304	82k	5%	0,5W
3698	4822 052 10478	4Ω7	5%	0,33W
3699	4822 052 10478	4Ω7	5%	0,33W
3700	4822 052 10688	6Ω8	5%	0,33W
3701	4822 052 10688	6Ω8	5%	0,33W
3705	4822 116 52297	68k	5%	0,5W
3706	4822 116 52297	68k	5%	0,5W
3707	4822 116 52297	68k	5%	0,5W
3708	4822 116 52297	68k	5%	0,5W
3713	4822 050 24702	4k7	1%	0,6W
3714	4822 116 52283	4k7	5%	0,5W
3715	4822 050 24702	4k7	1%	0,6W
3716	4822 050 21002	1k	1%	0,6W
3717	4822 050 21002	1k	1%	0,6W
3718	4822 050 21002	1k	1%	0,6W
3719	4822 050 11002	1k	1%	0,4W
3720	4822 050 21002	1k	1%	0,6W
3721	4822 050 11002	1k	1%	0,4W
3722	4822 050 21002	1k	1%	0,6W
3724	4822 050 21002	1k	1%	0,6W
3725	4822 050 21002	1k	1%	0,6W
3726	4822 050 24702	4k7	1%	0,6W
3727	4822 050 11002	1k	1%	0,4W

3728	4822 116 52283	4k7 5% 0,5W
3729	4822 116 52233	10k 5% 0,5W
3730	4822 116 52233	10k 5% 0,5W
3736	4822 116 52283	4k7 5% 0,5W
3737	4822 116 52283	4k7 5% 0,5W
3738	4822 116 52283	4k7 5% 0,5W
3739	4822 050 21002	1k 1% 0,6W
3740	4822 050 11002	1k 1% 0,4W
3741	4822 050 11002	1k 1% 0,4W
3742	4822 050 21002	1k 1% 0,6W
3743	4822 050 21002	1k 1% 0,6W
3744	4822 116 52233	10k 5% 0,5W
3745	4822 116 52283	4k7 5% 0,5W
3746	4822 116 52233	10k 5% 0,5W
3747	4822 116 52243	1k5 5% 0,5W
3764	4822 050 22201	220Ω 1% 0,6W
3765	4822 050 23902	3k9 1% 0,6W
3766	4822 116 52233	10k 5% 0,5W
3767	4822 116 52195	47Ω 5% 0,5W
3768	4822 116 52257	22k 5% 0,5W
3769	4822 116 52233	10k 5% 0,5W
3770	4822 116 52233	10k 5% 0,5W
3771	4822 116 52233	10k 5% 0,5W
3772	4822 116 52244	15k 5% 0,5W
3773	4822 116 52258	220k 5% 0,5W
3774	4822 116 52233	10k 5% 0,5W
3775	4822 116 52258	220k 5% 0,5W
3776	4822 116 52264	27k 5% 0,5W
3777	4822 116 52264	27k 5% 0,5W
3778	4822 116 52269	3k3 5% 0,5W
3779	4822 116 52238	12k 5% 0,5W
3780	4822 050 23301	330Ω 1% 0,6W
3781	4822 050 23301	330Ω 1% 0,6W
3785	4822 050 23901	390Ω 1% 0,6W
3786	4822 116 52239	120k 5% 0,5W
3787	4822 050 22201	220Ω 1% 0,6W
3788	4822 116 52233	10k 5% 0,5W
3789	4822 052 10228	2Ω2 5% 0,33W
3790	4822 102 10414	20kX2 20% 0,05W
3791	4822 116 52243	1k5 5% 0,5W
3792	4822 116 52243	1k5 5% 0,5W
3793	4822 050 11002	1k 1% 0,4W
3794	4822 050 11002	1k 1% 0,4W
3795	4822 052 10109	10Ω 5% 0,33W
3796	4822 116 52283	4k7 5% 0,5W
3797	4822 116 52233	10k 5% 0,5W
3798	4822 116 52284	47k 5% 0,5W
3799	4822 116 52234	100k 5% 0,5W

COILS

5001	4822 146 31161	MAINS TRAFO
5001	4822 146 31156	MAINS TRAFO /01
5001	4822 146 31158	MAINS TRAFO /10
5250	4822 280 70368	RELAY
5252	4822 157 62255	COIL
5253	4822 157 62255	COIL
5650	5322 242 73697	RESONATOR 8MHc
5651	4822 242 81016	RESONATOR 32MHc
5652	4822 157 60147	2,2μH

DIODES

6001	4822 130 83077	LED
6252	4822 130 61219	BZX79-C10
6253	4822 130 61219	BZX79-C10
6264	4822 130 30621	1N4148
6265	4822 130 30621	1N4148
6266	4822 130 30621	1N4148
6267	4822 130 30621	1N4148
6268	4822 130 30621	1N4148
6269	4822 130 30621	1N4148
6270	4822 130 30621	1N4148
6271	4822 130 30621	1N4148
6272	4822 130 30621	1N4148
6273	4822 130 30621	1N4148
6274	4822 130 30621	1N4148
6275	4822 130 30621	1N4148
6276	4822 130 30621	1N4148
6277	4822 130 30621	1N4148
6278	4822 130 30621	1N4148
6279	4822 130 30621	1N4148
6280	4822 130 30621	1N4148
6281	4822 130 30621	1N4148
6282	4822 130 30621	1N4148
6283	4822 130 30621	1N4148
6284	4822 130 30621	1N4148
6285	4822 130 30621	1N4148
6286	4822 130 30621	1N4148
6287	4822 130 30621	1N4148
5288	4822 130 30621	1N4148
6289	4822 130 30621	1N4148
6304	4822 130 82079	D3SBA20
6350	5322 130 30684	1N4002GP
6351	4822 130 31982	BYV27-100
6352	4822 130 31982	BYV27-100
6353	5322 130 30684	1N4002GP
6354	5322 130 30684	1N4002GP
6355	5322 130 30684	1N4002GP
6356	5322 130 32184	BYV27-50
6357	5322 130 32184	BYV27-50

6358	5322 130 30684	1N4002GP
6359	5322 130 30684	1N4002GP
6360	5322 130 30684	1N4002GP
6361	5322 130 30684	1N4002GP
6362	4822 130 34268	BZX79-C16
6363	4822 130 30621	1N4148
6364	4822 130 34382	BZX79-C8V2
6365	4822 130 34281	BZX79-C15
6366	4822 130 31024	BZX79-C18
6367	4822 130 34195	BZX79-C13
6368	4822 130 30621	1N4148
6369	4822 130 34174	BZX79-C4V7
6370	4822 130 34142	BZX79-F33
6371	4822 130 30621	1N4148
6372	4822 130 30621	1N4148
6373	4822 130 30621	1N4148
6374	4822 130 30861	BZX79-C7V5
6375	4822 130 34195	BZX79-C13
6376	4822 130 30621	1N4148
6377	4822 130 30621	1N4148
6378	5322 130 30684	1N4002GP
6379	5322 130 30684	1N4002GP
6380	5322 130 30684	1N4002GP
6381	5322 130 30684	1N4002GP
6382	4822 130 30621	1N4148
6383	4822 130 30621	1N4148
6384	4822 130 31024	BZX79-C18
6386	4822 130 30621	1N4148
6387	4822 130 30621	1N4148
6388	4822 130 30621	1N4148
6389	4822 130 30621	1N4148
6575	4822 130 30621	1N4148
6603	4822 130 34233	BZX79-C5V1
6650	4822 130 30621	1N4148
6651	4822 130 30621	1N4148
6652	4822 214 52009	GP1U58XP
6654	4822 130 81007	LT3P82A
6655	4822 130 30621	1N4148
6656	4822 130 30621	1N4148
6659	4822 130 34167	BZX79-C6V2
6664	4822 130 30621	1N4148
6665	4822 130 30621	1N4148
6666	4822 130 30621	1N4148
6667	4822 130 30621	1N4148
6780	4822 130 34233	BZX79-C5V1
6781	4822 130 34233	BZX79-C5V1
6782	4822 130 34233	BZX79-C5V1
6783	4822 130 30621	1N4148
6790	4822 130 30621	1N4148

TRANSISTORS & IC's

7255	4822 209 70157	NJM4560DD
7256	4822 130 41691	BC556B
7257	4822 130 41691	BC556B
7258	4822 130 42607	BF483
7259	4822 130 42607	BF483
7260	4822 130 40937	BC548B
7261	4822 130 40937	BC548B
7264	4822 130 40937	BC548B
7265	4822 130 40937	BC548B
7266	4822 130 44197	BC558B
7267	4822 130 44197	BC558B
7268	4822 130 63074	2SD1894
7269	4822 130 63074	2SD1894
7274	4822 130 63073	2SB1254
7275	4822 130 63073	2SB1254
7276	4822 130 40937	BC548B
7277	4822 130 40937	BC548B
7280	4822 130 44461	BC546B
7281	4822 130 40937	BC548B
7350	4822 130 62952	ON4772
7351	4822 130 60542	BD244B
7352	5322 130 61677	BC875
7353	5322 130 60206	BD680
7354	4822 130 41344	BC337-40
7355	4822 130 60542	BD244B
7356	4822 130 62952	ON4772
7357	4822 130 40937	BC548B
7358	4822 130 40937	BC548B
7359	4822 130 44197	BC558B
7360	5322 130 42505	BC876
7361	4822 130 44197	BC558B
7362	4822 130 40937	BC548B
7451	4822 209 70157	NJM4560DD
7452	4822 209 72748	LC7821
7453	4822 209 70157	NJM4560DD
7575	4822 209 70157	NJM4560DD
7576	4822 130 41024	BF245B
7577	5322 130 41983	BC858B
7601	4822 209 71301	M5229P
7602	4822 209 71301	M5229P
7603	4822 209 30372	LC7520
7604	4822 209 31618	LC7535
7605	4822 209 70157	NJM4560DD
7650	4822 130 40937	BC548B
7654	4822 130 44197	BC558B
7655	4822 130 40937	BC548B
7656	4822 130 40937	BC548B
7663	4822 130 40937	BC548B
7664	4822 130 40937	BC548B
7665	4822 130 40937	BC548B

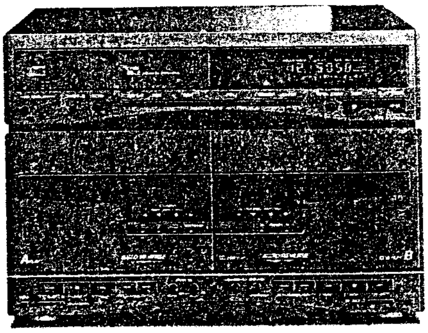
7674	4822 130 40937	BC548B
7675	4822 130 40937	BC548B
7683	4822 209 31591	TMP87CH70F
7684	4822 209 62098	ST24C02AB1
7690	5322 130 44779	BC338-40
7691	5322 130 44779	BC338-40
7692	4822 130 40937	BC548B
7785	4822 209 31502	BA3826S
7786	4822 209 63667	BA6229
7787	4822 209 83274	NJM4560D
7788	4822 130 40948	BC548A
7789	4822 130 40937	BC548B

SERV. 37198

Mini-system double cassette deck + CD 70CD060

/00

Service
Service
Service



Service Manual

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PHILIPS

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TECHNICAL SPECIFICATION

General:

Ext. Supply : ±7,5 - ±16 V DC
+14V DC
16 - 33 V DC
4,5V AC (FTD filament voltage)
Power consumption : 30W max.
2W in stand by

CD-part

Number of channels : 2
Output voltage : 2 Vrms ±3 dB
Output resistance : 1 kΩ
Unbalance left/right : ±1,2 dB max.
Frequency response : 20 - 20.000 Hz +2 / -3 dB
Phase non linearity : ±5,0° max. from 20 - 20.000 Hz
S/N ratio : > 60 dB from 20 - 20.000 Hz
Dynamic range : > 70 dB from 20 - 20.000 Hz
> 80 dB at 1 kHz
THD + noise : > 60 dB from 20 - 20.000 Hz
> 70 dB at 1kHz
Channel separation : > 70 dB from 20 - 20.000 Hz
> 80 dB at 1 kHz
Out-band attenuation : > 35 dB above 40 kHz
Muting during random access : > 80 dB from 20 - 20.000 Hz
D/A-converter : CD4+ "Bitstream"

Automatic switched de-emphasis with time constants 15/50µs.

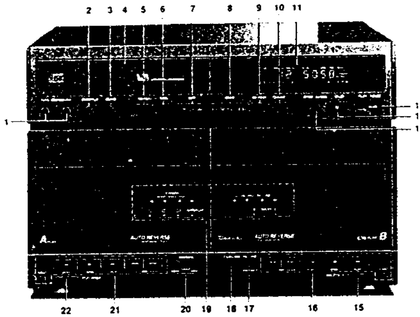
Optical read-out system
Laser type : Semiconductor AlGaAs
Wavelength : 780 nm ±20 nm
Light output (c.w.) : 0,5 mW max.

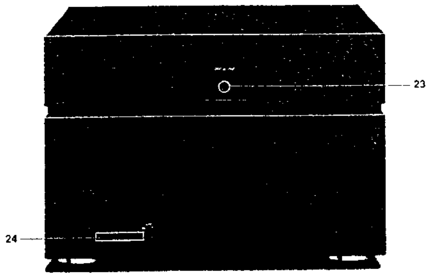
Recorder part:

Tape speed : 4,76 cm/s ±2% in Normal Speed
: 9,5 cm/s ±2% in High Speed
Wow & Flutter : ≤0,3%
Winding speed : 130 s ±15 s for C60 cassette
Noise reduction system : Dolby B (Noise Reduction factor: 8,5 dB typ.)
: Dolby C (Noise Reduction factor: 17 dB typ.)
Erase / Bias system : AC 80 kHz
RIF-shift : *service solution on request (see page 39)*
Distortion at 220 nWb/m : ≤ 3%
Channel difference at PB : ≤ 2 dB
Channel difference overall : ≤ 2 dB
Channel separation : ≥ 22 dB at 1 kHz
Track separation : ≥ 59 dB at 1 kHz
ALC attack time : ≤ 300 ms
ALC recovery time : typ. 130 s

	IEC I	IEC II	Dubbing NS	Dubbing HS
Frequency response -5 dB [1]	100 Hz - 12,5 kHz	100 Hz - 12,5 kHz	100 Hz - 12.5 kHz	100 Hz - 12.5 kHz
Signal to noise ratio [2]	43 dB	46 dB	43 dB / 46 dB	43 dB / 46 dB
Signal to hum ratio [2]	51 dB	53 dB	51 dB / 53 dB	51 dB / 53 dB
Erase attenuation	60 dB	60 dB	60 dB	60 dB

[1] typical value
[2] at 250 nWb/m





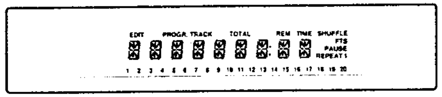
CONNECTIONS & CONTROLS

1 ◂◂ **SEARCH** ▸▸ – for selecting the next/previous track or searching for a particular passage during playback.
2 **SHUFFLE** – for playing a CD or program in random order.
3 **SCAN** – for playing the first 10 seconds of each track on a CD or in a program.
4 **CD TRAY** – for inserting a CD.
5 **REPEAT** – for repeating a particular track, a program or the whole CD.
6 **TIME** – for selecting the time information you want to see on the display.
7 **EDIT** – for automatically creating a selection of tracks adjusted to the maximum playing time of a cassette for making a recording.
8 **PROG(ram)** – for activating the program memory when compiling a program and for storing a program in the FTS memory.
9 **REVIEW** – for checking a program.
10 **CLEAR** – for erasing track numbers from a program, erasing a whole (FTS) program or erasing titles and desired equalizer settings.
11 **DISPLAY** – for displaying information about the functioning of the player.
13 **STOP ■** – for stopping play.
14 **OPEN/CLOSE** – for opening and closing the CD compartment. The compartment also closes when the front is pressed briefly.
12 **PLAY/PAUSE** – for starting and interrupting play.
15 **DOLBY B/C** – for switching the Dolby Noise Reduction system on and off and for selecting DOLBY B or C.
16 **Keyboard Deck B** (for recording and playback)
◂◂ AMS ▸▸ – fast winding to left or right and Automatic Music Search when pressed during playback
PLAY ◀ – for starting playback of the reverse side of the cass.
STOP ■ – for stopping the tape transport
PLAY ▶ – for starting playback of the front side of the cassette
EJECT – for opening the cassette holder of deck B
17 **RECORD PREPARED** – for preparing a recording or creating a muted passage during recording.
18 **CD SYNCHRO** – for the synchronised starting of deck B and the CD player when recording from the CD player.
19 **INDICATORS** – for indicating the features used.

- ◀ direction ▶ – indicates the tape travel direction of deck A or B. The indicators are flashing when automatic rewind is activated.
- RECORD – flashes when RECORD PREPARE is active and remains illuminated when actually recording.
- CD **SYNCHRO** – is illuminated during a synchronised CD recording.
- The selected play mode indicators for both decks:
  ⊐ – the tape stops at the end of each side;
  ⊂ – playback (+ recording for deck B) of both cassette sides, after which the tape stops at the end of the second side;
  (⊐) – continuous playback of both cassette sides:
  autoplay – continuous playback of both cassette sides on both decks
- Dubbing speed: **NORMAL** or **HIGH**
- Dolby B or C – depends on what you selected by pressing DOLBY B/C 8

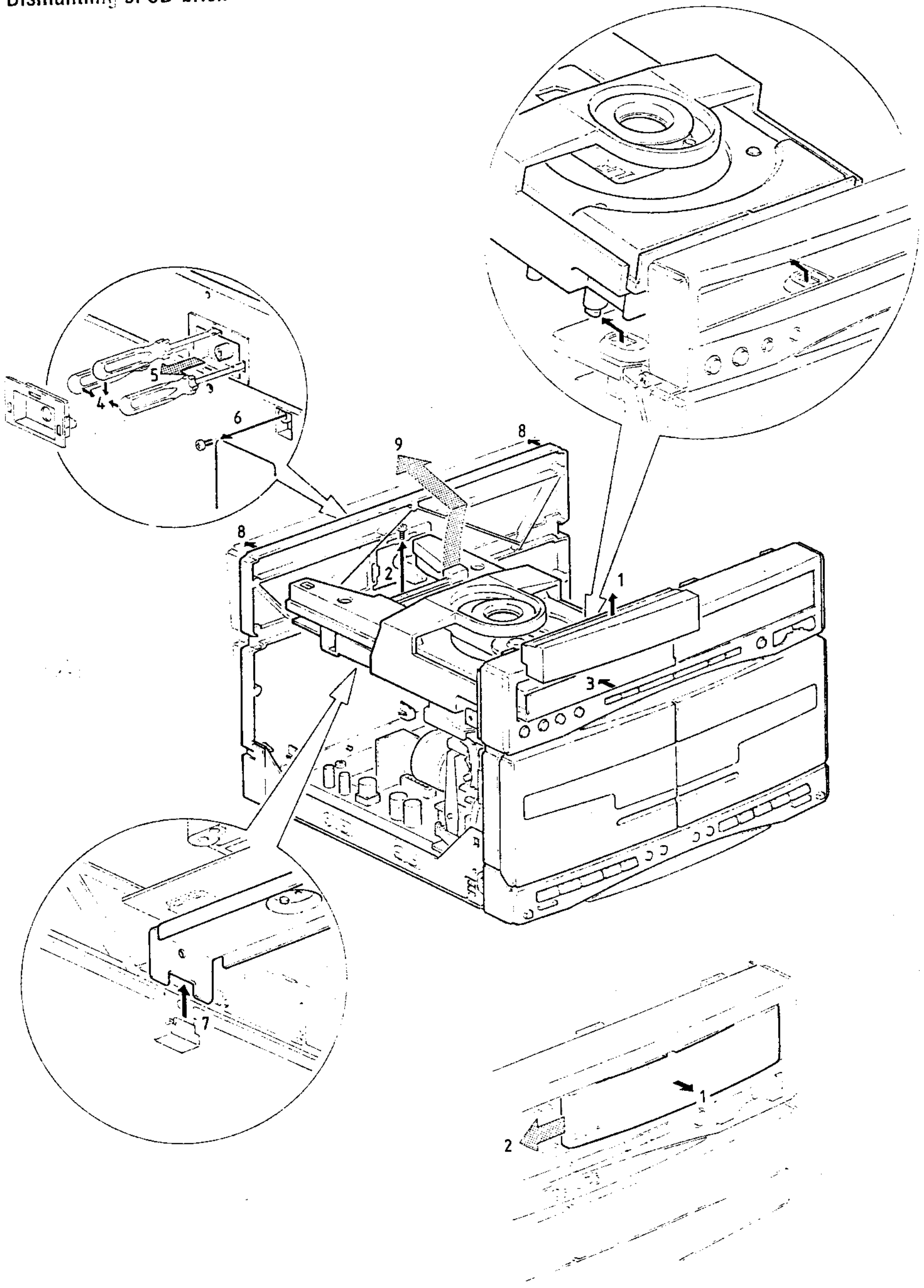
20 **DUBBING** – to start dubbing from deck A to deck B at NORMAL or HIGH speed.
21 **Keyboard Deck A** (for playback only)
EJECT – for opening the cassette holder of deck A
PLAY ◀ – for starting playback of the reverse side of the cassette
STOP ■ – for stopping the tape transport
PLAY ▶ – for starting playback of the front side of the cassette
◂◂ AMS ▸▸ – fast winding to left or right and Automatic Music Search when pressed during playback.
22 **PLAY MODE** – for selecting the play mode
– to play just one side of the cassette (⊐)
– to play both sides of the same cassette (⊂)
– to continuous play on one deck ((⊐))
– for continuous play over both decks (autoplay)
23 **DIGITAL OUT** – socket for connecting the digital output of the CD-player to the amplifier (for digital recording).
24 **CD-TAPE IN/OUT** – connector for the long system control cable

DISPLAY



- **EDIT** – Lights up when the player is in the EDIT mode.
- **PROGR. (am)** – Lights up during programming, when a program is stored and when a program is being played.
- **TRACK** – Indicates what track is being played: the number of tracks on the CD or in a program.
- **TOTAL TIME** – Indicates the total playing time of the CD or a program.
- **TOTAL REM(aining) TIME** – Indicates the remaining playing time of the CD or a program.
- **TRACK TIME** – Indicates the elapsed playing time of the track being played.
- **REM(aining) TRACK TIME** – Indicates the remaining playing time of the track being played.
- **SHUFFLE** – Lights up when the tracks are played in random order in the shuffle mode.
- **FTS** – Flashes after the FTS key has been pressed; lights up when an FTS program is played.
- **PAUSE** – Lights up when play is interrupted.
- **REPEAT** – Lights up when you repeat a CD or a program.
- **REPEAT 1** – Lights up when you repeat one track
- **TEXT DISPLAY** – To show messages, playing time information or disc titles.
- **1-20 track number indicator (Music calendar)** – Shows the track currently playing and the (remaining) tracks which are not being played at the moment.

Dismantling of CD-brick



1
2
3
4
5
6
7
8
8
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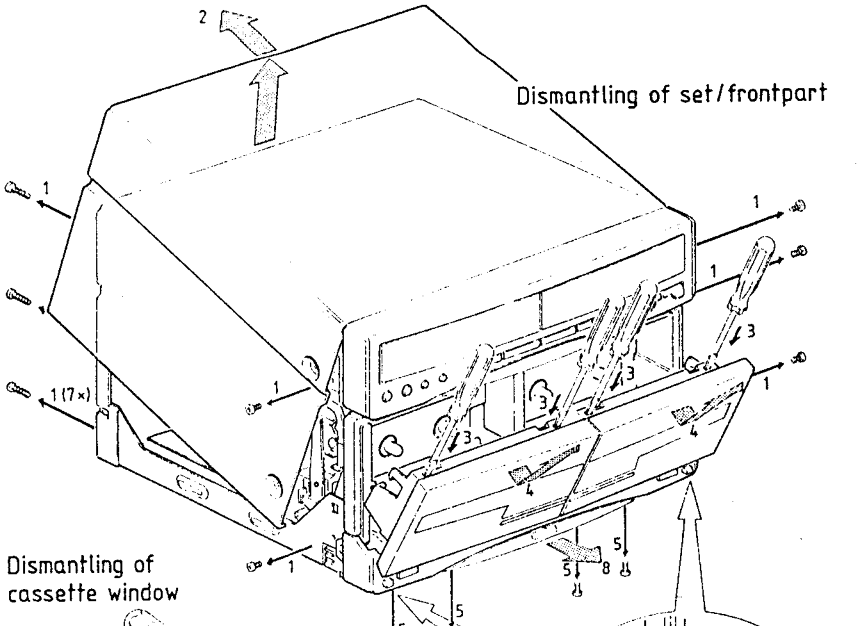
1
2


2
1
1
1 (7×)
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1
1
1
3
3
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3
4
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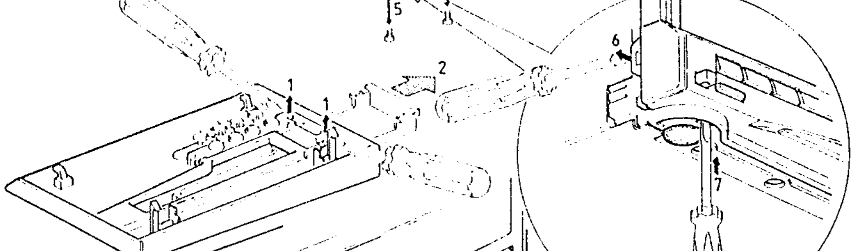
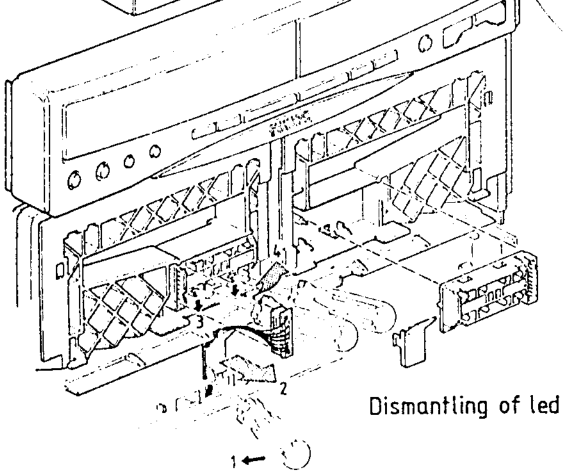
5
5
5
8
5

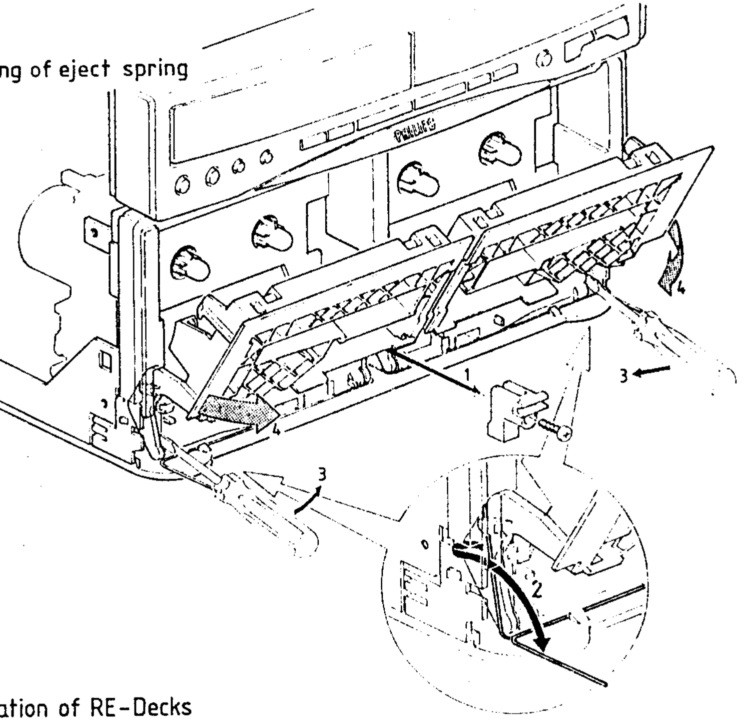
Dismantling of set/frontpart



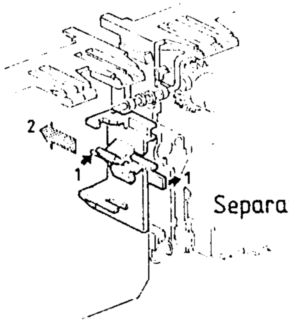
Dismantling of cassette window



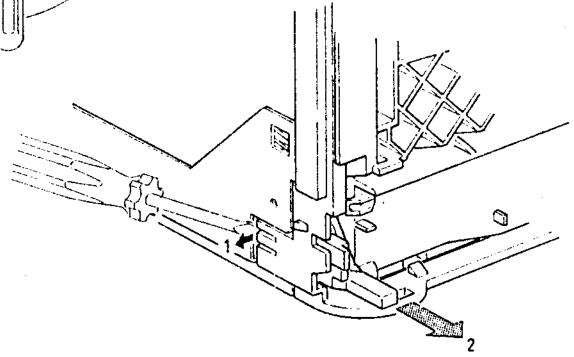
Dismantling of led holder



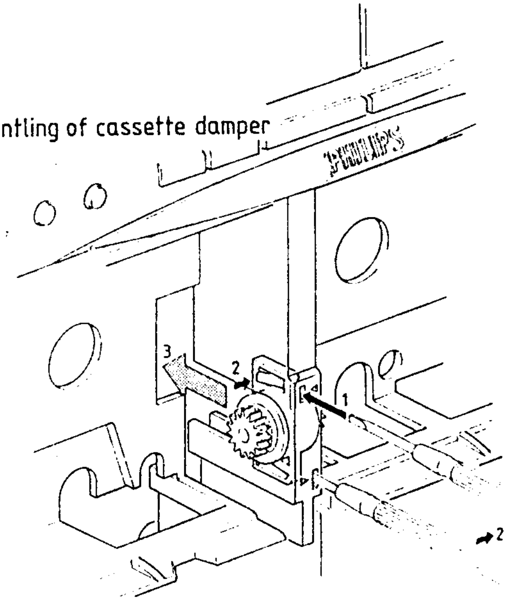
Dismantling of eject spring



Separation of RE-Decks



Dismantling of eject button



Dismantling of cassette damper

SERVICE TEST PROGRAM

1. General

The service test program of the CCD60 is provided with five different test-modes.

2. Preliminary setup

To get into the service test program hold the keys PROG & NEXT depressed while turning POWER ON. The display shows "CCD60–xx". "xx" indicates the software-version built in. After three seconds the message "SERVICE" appears.
Following tests can now be choosen:

– Display & LED-test	pressing TIME
– Key-test	pressing REPEAT
– Easy link-test	pressing OPEN/CLOSE
– CD-test	pressing NEXT
– Tape-test	pressing DUBBING (normal speed)

To leave the service test program press the STOP button of the CD-keyboard.

2.1. Display & LED-test

Enter the dispaly & LED-test as described in 2.
Three different test patterns for the display and the MODE-LEDs are available (see fig. 1-3). The patterns can be scrolled pressing the NEXT-button.
To leave the display & LED-test press the TIME-button.

2.2. Key-test

Enter the key-test as described in 2. The display shows "KEY". Press the button to be checked and compare the corresponding key-number according to table1 (CD-buttons) resp. table2 (tape-buttons). To check the keys of the remote control compare the key-numbers according to table3 (CD-buttons) resp. table4 (tape-buttons).
If all keys of the set have been depressed the display shows "KEY OK".
To leave the key-test press the REPEAT-button.
Note: If one ore more buttons have not been pressed before leaving the key-test the display shows "KEY ***" for 1 second.

2.3. Easy link-test

Enter the easy link-test as described in 2.
The test works as follows:
First it is checked if both easylink in and easylink out are high. If an error occures the display shows "EAS–CON". Else the output port is set low. If the input port does not follow "EAS–LOW" is displayed. Else the output port is set high. If the input is wrong "EAS–HIGH" is displayed.
If the bus works the right way the display shows "EASY–OK". In that case the easy link-test will be left automatically after 1,5 seconds.

2.4. CD-test

Enter the CD-test as described in 2.
The dispaly shows "SERVO xx". xx Indicates the software-version.

2.4.1. CD-test, sledge movement

The movement of the sledge can be checked pressing the STOP-button. As long as the button is hold depressed the optical pick-up will move outside, the display shows "SLEDGE". After releasing STOP the pick-up will return to the inner position, the display shows "SERVO xx", again.
To enter the lens movement & focus search test press the NEXT-button, to leave the CD-test press PREVIOUS.

2.4.2. CD-test, lens movement & focus search

The display shows "FOCUS". The lens should move up/down continuously. If a CD is inserted the typical "focus servo noise" will be audible.
To enter the turntable motor test press the NEXT-button, to go back to the sledge movement test press PREVIOUS.

2.4.3. CD-test, turntable motor on (insert disc)

The display shows "MOTOR". The turntable motor will start rotating, the focus servo control circuit is activated, servo noise will be audible.
To enter the tracking test press the NEXT-button, to go back to the lens movement & focus search test press PREVIOUS.

2.4.4. CD-test, tracking (insert disc)

The display shows "RADIAL". The focus- track- and turntable motor - control circuits are activated. This mode is equal to the normal play-mode, but without any features.
To go back to the turntable motor test press the PREVIOUS-button. to leave the CD-test press 4 x PREVIOUS.

2.5. Tape-test

Enter this test as described in 2. All LEDs will light up for one second.
The MODE-LEDs of deck A are used to show the 10 diffrent test functions of the tape-test program (binary coded). The test functions can be choosen pressing the WIND- resp. REWIND-button.

***Note:** The selected test function will not be started before the button DUBBING (normal speed) has been depressed !*
To stop the actual test execution press STOP (deck A).

Tape-test functions:

No.	binary	description
1	0001	Not used
2	0010	All LEDs on
3	0011	All LEDs off
4	0100	Shift logical "1" through all LEDs. Pressing the PLAY MODE-button (deck A) switches the next LED on.
5	0101	Not used
6	0110	Not used
7	0111	Not used
8	1000	Not used
9	1001	DCL-test IC7401 tries to communicate with IC7709 on the RECORDER/DIGITAL PART. If communication is OK the MODE-LEDs (deck A and deck B) are off. Otherwise one ore more LEDs are on.
10	1010	Read RE-module version The version is binary displayed on the MODE-LEDs (deck A–first digit, deck B–second digit).
11	1011	Solenoid test First solenoid of deck B is switched on for 13 seconds, then that of deck A.
12	1100	Play deck A in HIGH SPEED
13	1101	Play deck B in HIGH SPEED
14	1110	Read tape-deck software version The software version of the main µP is binary displayed on the MODE-LEDs (deck A–first digit, deck B–second digit).
15	1111	End of tape-test

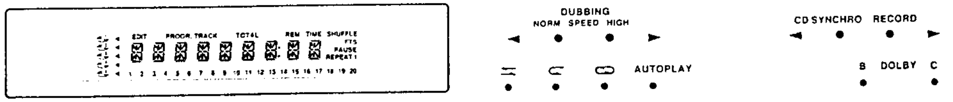


fig.1

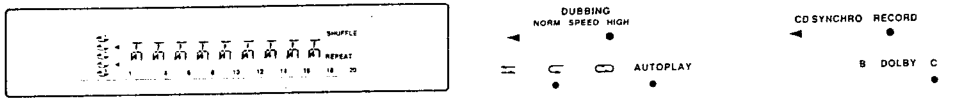


fig.2

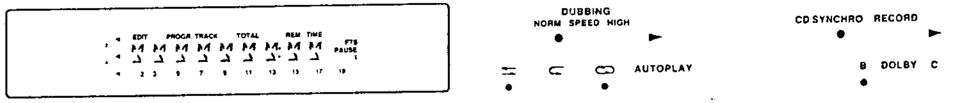


fig.3

CD-BUTTON	KEY-NUMBER
PLAY/PAUSE	39
OPEN/CLOSE	3A
STOP	3B
CLEAR	49
PROGRAM	4A
REVIEW	4B
EDIT	5A
TIME	69
REPEAT	EXIT
SCAN	6A
SHUFFLE	79
PREVIOUS	7A
NEXT	7B

table1

TAPE-BUTTON	KEY-NUMBER
DECK A, PLAY RIGHT	11
DECK A, REWIND	12
DECK A, WIND	13
DECK A, PLAY LEFT	14
DECK B, REWIND	15
DECK B, WIND	16
DECK B, PLAY LEFT	17
DECK B, PLAY RIGHT	18
NORMAL DUBBING	21
DECK A, STOP	22
HIGH SPEED DUBBING	23
RECORD	25
CD-SYNCHRO	26
DECK B, STOP	27
DOLBY B/C	28

table2

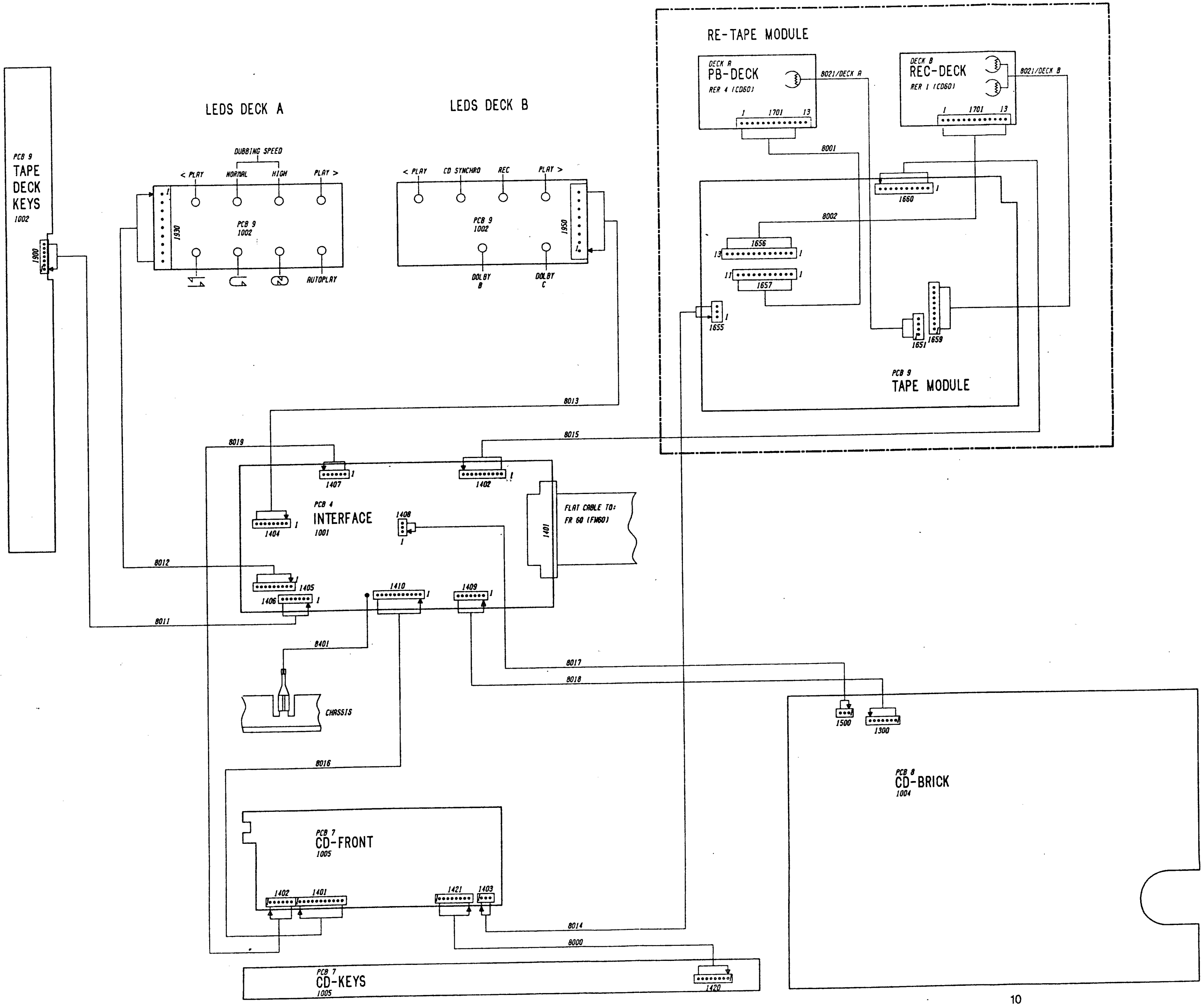
RC CD-BUTTON (RC5-code)	KEY-NUMBER
STOP	3BR
CD STANDBY	60R
PLAY	61R
NEXT	62R
PREVIOUS	63R
SEARCH >>	64R
SEARCH <<	65R
PAUSE	66R
CD	67R
SHUFFLE	79R

table3

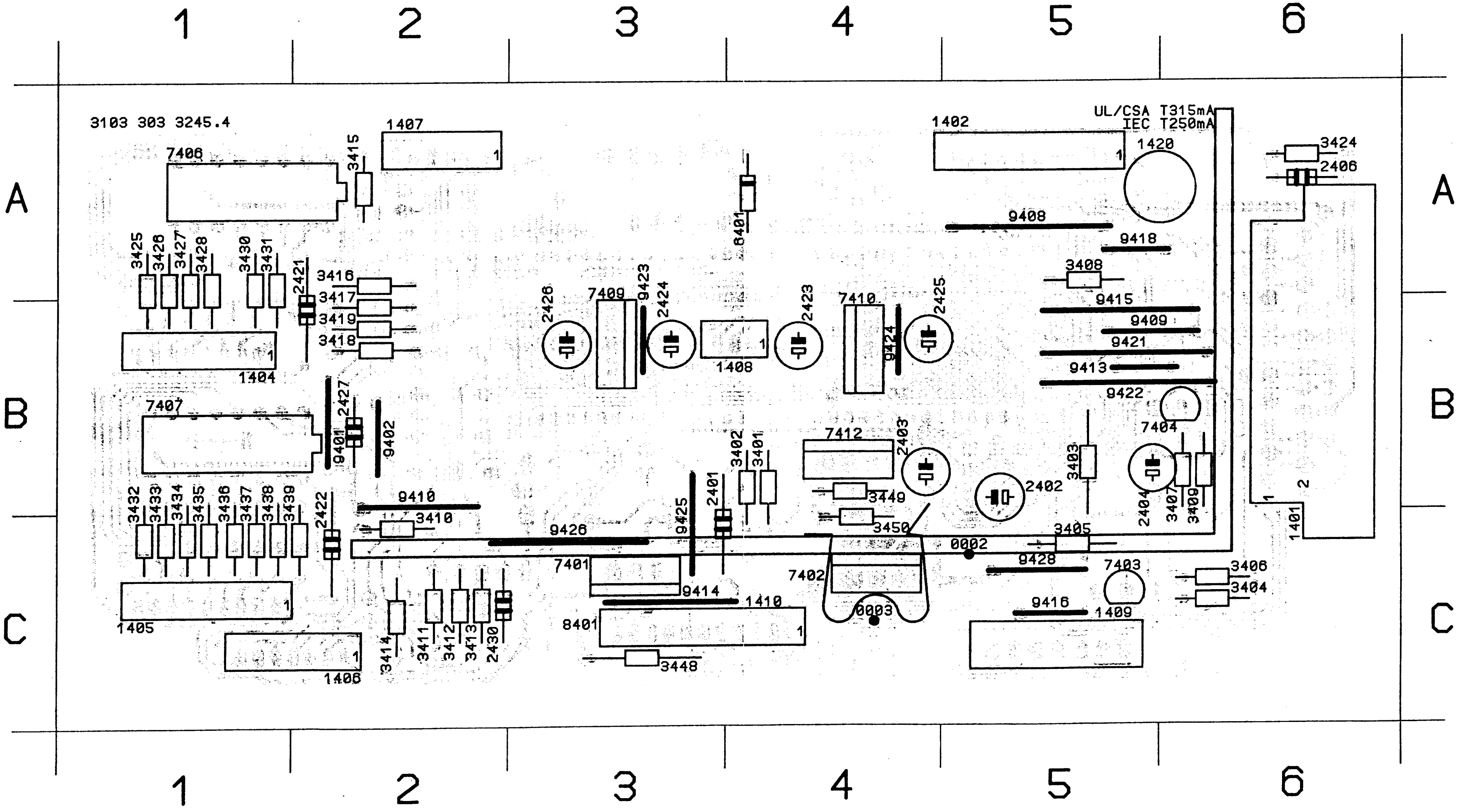
RC TAPE-BUTTON (RC5-code)	KEY-NUMBER
PLAY	6CR
STOP	6DR
SELECT DECK B	6FR
SELECT DECK A	70R
WIND	71R
REWIND	72R
ACTIVE WIND	73R
ACTIVE REWIND	74R
TAPE STANDBY	75R
TAPE	76R

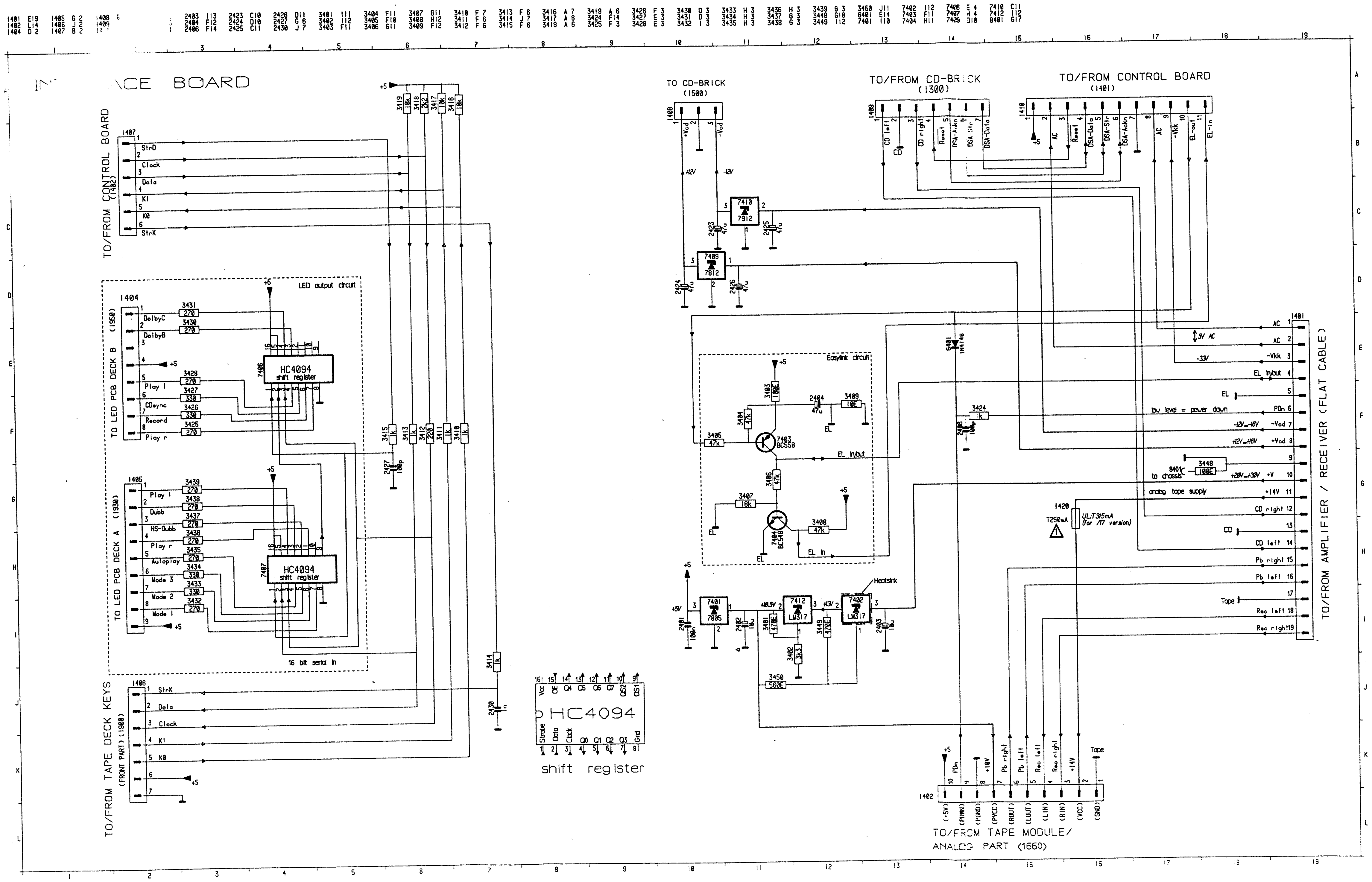
table4

WIRING DIAGRAM


RE-TAPE MODULE
DECK A
PB-DECK
RER 4 (CD60)
1 1701 13
8021/DECK A
DECK B
REC-DECK
RER 1 (CD60)
1 1701 13
8021/DECK B
8001
1660
8002
1656
13 1
11 1
1657
1655
1651
1659
PCB 9
TAPE MODULE
PCB 9
TAPE DECK KEYS
1002
1900
LEDS DECK A
DUBBING SPEED
< PLAY
NORMAL
HIGH
PLAY >
1930
PCB 9
1002
AUTOPLAY
LEDS DECK B
< PLAY
CD SYNCHRO
REC
PLAY >
PCB 9
1002
1950
DOLBY B
DOLBY C
8013
8015
8019
1407
1402
PCB 4
INTERFACE
1001
1404
1408
1401
FLAT CABLE TO:
FR 60 (FW60)
8012
1405
1406
1410
1409
8011
8401
CHASSIS
8017
8018
1500
1300
PCB 8
CD-BRICK
1004
8016
PCB 7
CD-FRONT
1005
1402
1401
1421
1403
8014
8000
PCB 7
CD-KEYS
1005
1420

0002 C 5	1407 A 2	2403 B 4	2425 B 4	3404 C 6	3411 C 2	3418 B 2	3430 B 1	3437 C 1	7401 C 3	7410 B 4	9410 B 2	9422 B 5
0003 C 4	1408 B 4	2404 B 5	2426 B 3	3405 C 5	3412 C 2	3419 B 2	3431 B 1	3438 C 1	7402 C 4	7412 B 4	9413 B 6	9423 B 3
1401 B 6	1409 C 5	2406 A 6	2427 B 2	3406 C 6	3413 C 2	3424 A 6	3432 C 1	3439 C 2	7403 C 5	8401 C 3	9414 C 4	9424 B 4
1402 A 5	1410 C 4	2421 A 2	2430 C 2	3407 B 6	3414 C 2	3425 B 1	3433 C 1	3448 C 3	7404 B 6	9401 B 2	9415 B 5	9425 C 3
1404 B 1	1420 A 5	2422 B 2	3401 C 4	3408 A 5	3415 A 2	3426 B 1	3434 C 1	3449 B 4	7406 A 2	9402 B 2	9416 C 5	9426 C 2
1405 C 1	2401 B 3	2423 B 4	3402 B 4	3409 B 6	3416 A 2	3427 B 1	3435 C 1	3450 C 4	7407 B 2	9408 A 5	9418 A 5	9428 C 5
1406 C 2	2402 B 5	2424 B 3	3403 C 5	3410 C 2	3417 B 2	3428 B 1	3436 C 1	6401 A 4	7409 B 3	9409 B 5	9421 B 5	

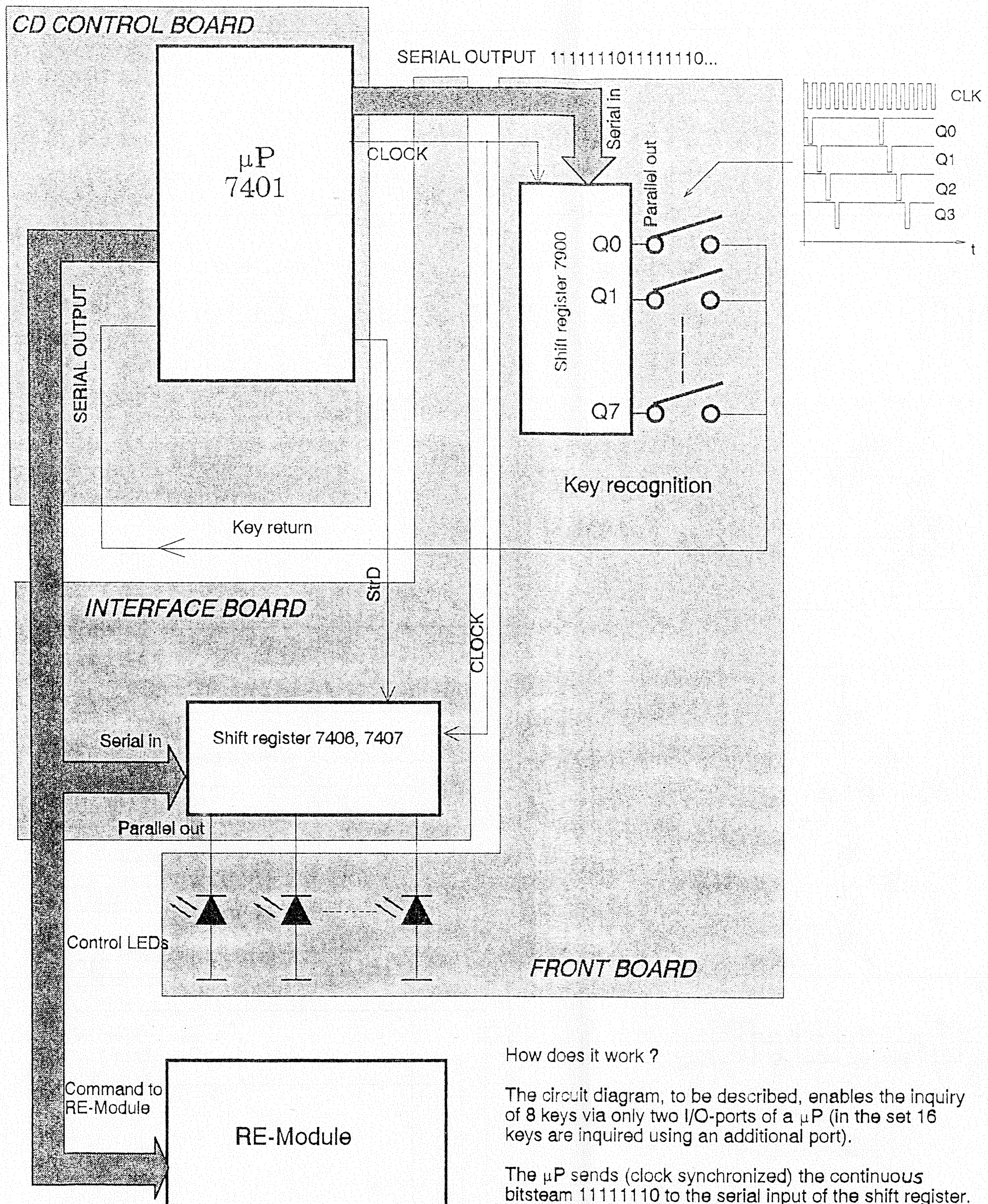

1
2
3
4
5
6
A
B
C
3103 303 3245.4
UL/CSA T315mA
IEC T250mA
7406
1407
3415
6401
1402
1420
3424
2406
9408
9418
3408
3425
3426
3427
3428
3430
3431
2421
3416
3417
3419
3418
1404
2426
7409
9423
2424
1408
2423
7410
2425
9424
9415
9409
9421
9413
9422
7404
7407
9401
2427
9402
7412
2403
3402
3401
2401
9425
3449
3450
2402
3403
2404
3407
3409
1401
3432
3433
3434
3435
3436
3437
3438
3439
2422
9410
3410
9426
7401
9414
1410
7402
0003
0002
3405
9428
7403
3406
3404
9416
1409
1405
1406
3414
3411
3412
3413
2430
8401
3448


IN ACE BOARD
1401 E19 1402 L14 1404 D2 1405 G2 1406 J2 1407 B2 1408 1409
2403 I13 2404 F12 2406 F14 2423 C10 2424 D10 2425 C11 2426 D11 2427 G6 2430 J7
3401 I11 3402 I12 3403 F11 3404 F11 3405 F10 3406 G11 3407 G11 3408 H12 3409 F12
3410 F7 3411 F6 3412 F6 3413 F6 3414 J7 3415 F6 3416 A7 3417 A6 3418 A6 3419 A6
3424 F14 3425 F3 3426 F3 3427 E3 3428 E3 3430 D3 3431 D3 3432 I3 3433 H3 3434 H3 3435 H3
3436 H3 3437 G3 3438 G3 3439 G3 3448 G18 3449 I12 3450 J11 6401 E14 7401 I10
7402 I12 7403 F11 7404 H11 7406 E4 7407 H4 7409 D10 7410 C11 7412 I12 8401 G17
TO/FROM CONTROL BOARD (1402)
1407
StrD
Clock
Data
KI
K0
StrK
+5
3419 10k
3418 2k2
3417 10k
3416 10k
LED output circuit
1404
DolbyC
DolbyB
Play l
CDsync
Record
Play r
TO LED PCB DECK B (1950)
3431 270
3430 270
3428 270
3427 330
3426 330
3425 270
7406
HC4094
shift register
3415 1k
3413 1k
3412 220
3411 1k
3410 1k
2427 100p
1405
Play l
Dubb
HS-Dubb
Play r
Autoplay
Mode 3
Mode 2
Mode 1
TO LED PCB DECK A (1930)
3439 270
3438 270
3437 270
3436 270
3435 270
3434 330
3433 330
3432 270
7407
HC4094
shift register
16 bit serial in
TO/FROM TAPE DECK KEYS (FRONT PART) (1900)
1406
StrK
Data
Clock
KI
K0
3414 1k
2430 1n
Vcc OE Q4 Q5 Q6 Q7 QS2 QS1
HC4094
Strobe Data Clock Q0 Q1 Q2 Q3 Gnd
shift register
TO CD-BRICK (1500)
1408
+Vcd
-Vcd
+12V
-12V
7410 7912
7409 7812
2423 47u
2425 47u
2424 47u
2426 47u
TO/FROM CD-BRICK (1300)
1409
CD left
CD
CD right
Reset
DSA-Ackn
DSA-Str
DSA-Data
TO/FROM CONTROL BOARD (1401)
1410
+5
AC
Reset
DSA-Data
DSA-Str
DSA-Ackn
AC
-Vkk
EL-out
EL-in
Easylink circuit
3403 100E
3404 47k
3405 47k
2404 47u
3409 10E
7403 BC558
EL In/out
3406 47k
3407 18k
3408 47k
7404 BC548
EL In
EL
6401 1N4148
3424 1k
2406 100p
1401
AC 1
5V AC
AC 2
-Vkk 3
-33V
EL In/out 4
EL 5
low level = power down
PDn 6
-12V…-16V -Vcd 7
+12V…+16V +Vcd 8
9
3448 100E
8401 to chassis
+20V…+30V +V 10
analog tape supply
+14V 11
CD right 12
CD 13
CD left 14
Pb right 15
Pb left 16
Tape 17
Rec left 18
Rec right 19
TO/FROM AMPLIFIER / RECEIVER (FLAT CABLE)
1420
T250mA
UL:T315mA (for /17 version)
+5V
7401 7805
2401 100n
2402 10u
+10.5V
7412 LM317
3401 470E
3402 3k3
+13V
3449 470E
7402 LM317
Heatsink
2403 10u
3450 560E
+5
PDn
+10V
Pb right
Pb left
Rec left
Rec right
+14V
Tape
1402
(+5V) (PDWN) (PGND) (PVCC) (ROUT) (LOUT) (LIN) (RIN) (VCC) (GND)
TO/FROM TAPE MODULE/ ANALOG PART (1660)

nul

PCB: 3103 303 3245

Principle function of keyboard inquiry

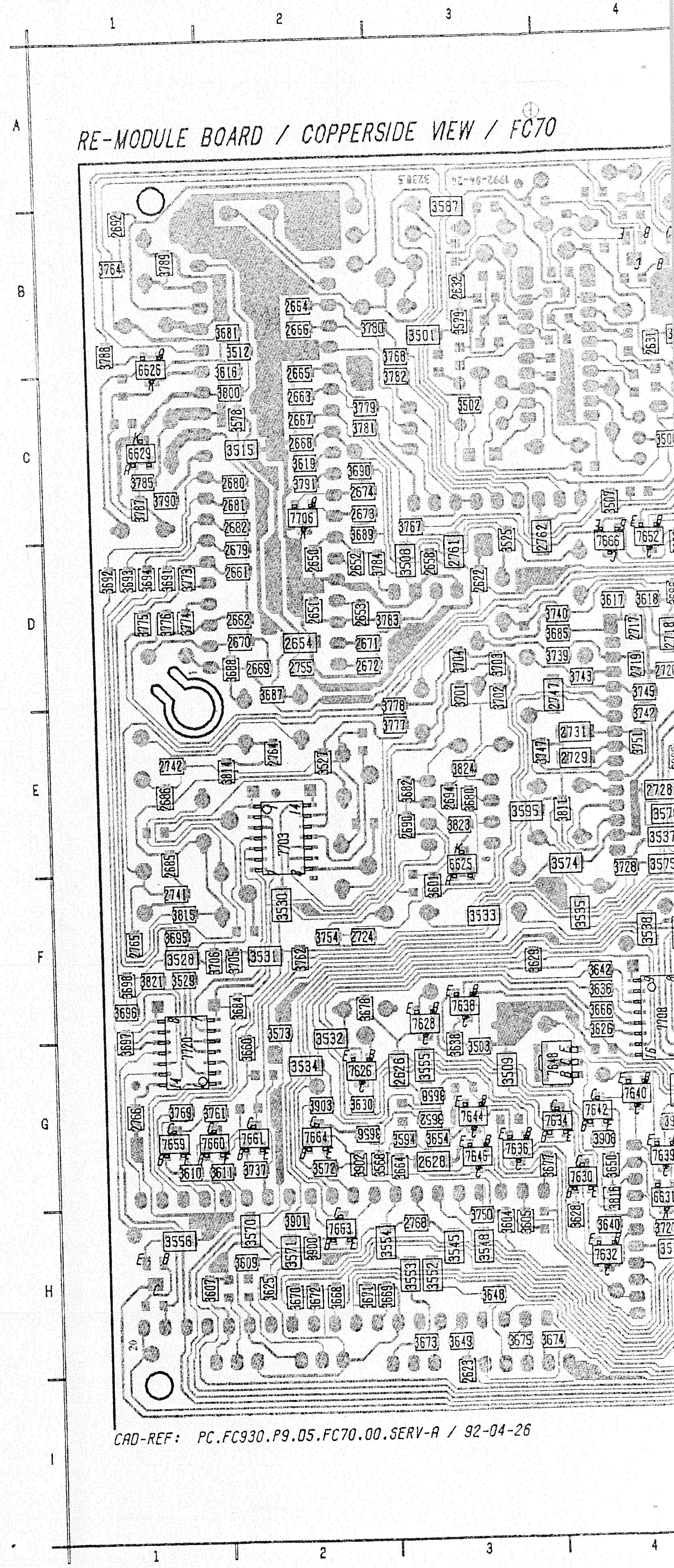


How does it work ?

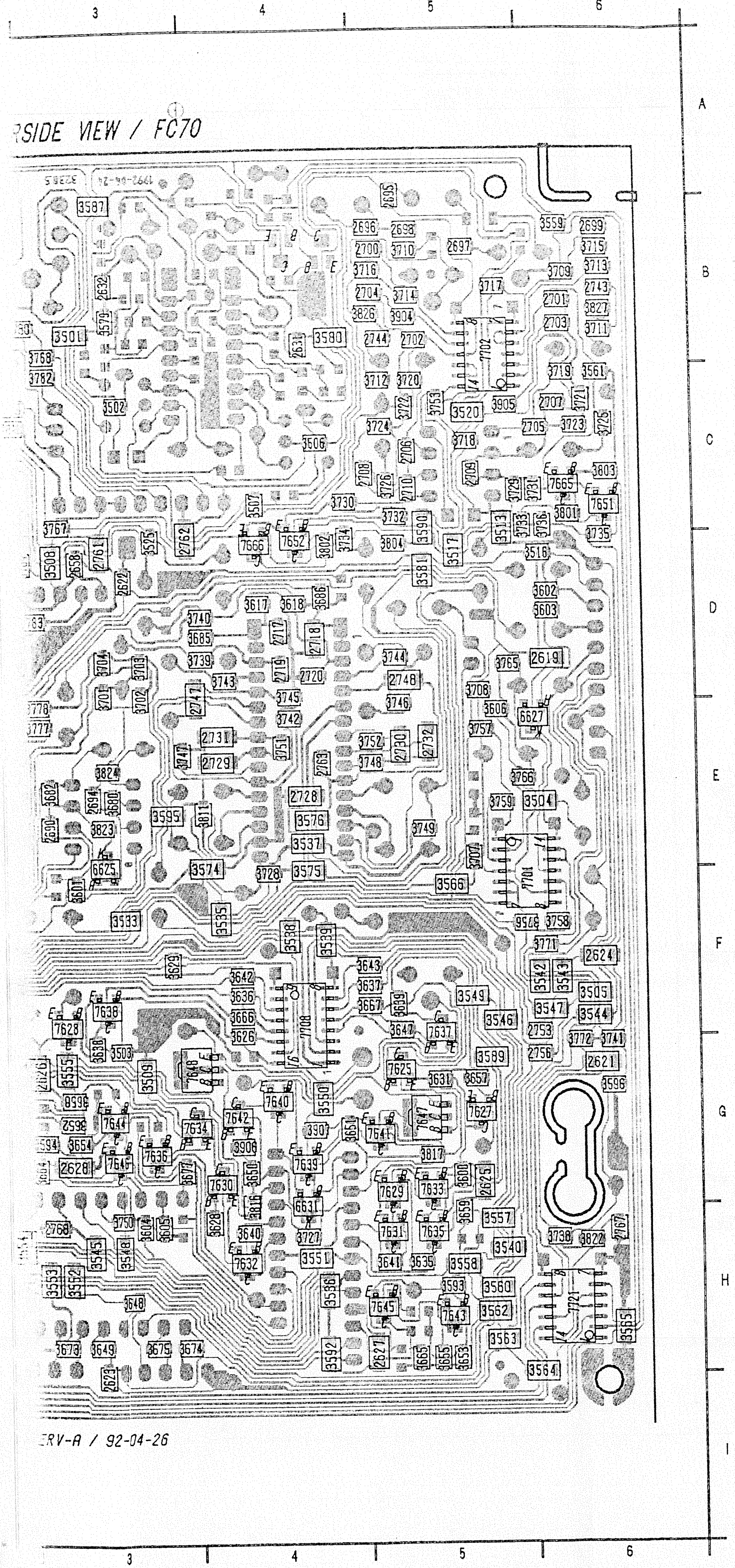
The circuit diagram, to be described, enables the inquiry of 8 keys via only two I/O-ports of a µP (in the set 16 keys are inquired using an additional port).

The µP sends (clock synchronized) the continuous bitsteam 11111110 to the serial input of the shift register. This bitstream can also be measured on the output pins Q0-Q7 with a delay of one clock impulse, each.
If no keys are depressed the "key reurn" line is permanently high. - If a switch is closed "key return" will become low for one clock impulse. An internal counter (resetted with every 11111110 bit-sequence) determines the number of steps till "key return" becomes low. The counter reading corresponds to the key pressed, the corresponding command will be sent to the RE-module.
Also a 16-bit word is sent to the shift registers 7406/7407.
This "LED-pattern" is activated via the StrD-line.

2619	D 6
2621	G 6
2622	D 3
2623	H 3
2624	F 6
2625	G 5
2626	G 3
2627	H 5
2628	G 3
2631	B 4
2632	B 3
2650	D 2
2651	D 2
2652	D 2
2653	D 2
2654	D 2
2658	D 3
2661	D 2
2662	D 2
2663	C 2
2664	B 2
2665	C 2
2666	B 2
2667	C 2
2668	C 2
2669	D 2
2670	D 2
2671	D 2
2672	D 2
2673	C 2
2674	C 2
2679	D 2
2680	C 2
2681	C 2
2682	C 2
2685	E 1
2686	E 1
2690	E 3
2692	B 1
2694	E 3
2695	A 5
2696	B 5
2697	B 5
2698	B 5
2699	B 6
2700	B 5
2701	B 6
2702	B 5
2703	B 6
2704	B 5
2705	C 6
2706	C 5
2707	C 6
2708	C 5
2709	C 5
2710	C 5
2717	D 4
2718	D 4
2719	D 4
2720	D 4
2724	F 2
2728	E 4
2729	E 4
2730	E 5
2731	E 4
2732	E 5
2741	F 1
2742	E 1
2743	B 6
2744	B 5
2747	D 4
2748	D 5
2753	F 6
2755	D 2
2756	G 6
2761	D 3
2762	D 3
2763	E 4
2764	E 2
2765	F 1
2766	G 1
2767	H 6
2768	H 3
3501	B 3
3502	C 3
3503	G 3
3504	E 6
3505	F 6
3506	C 4
3507	C 4
3508	D 3
3509	G 3
3512	B 2
3513	C 5
3515	C 2
3516	D 6
3517	D 5
3520	C 5
3525	D 3
3527	E 2
3528	F 1
3529	F 1
3530	F 2
3531	F 2
3532	G 2
3533	F 3
3534	G 2
3535	F 4
3536	H 4
3537	E 4
3538	F 4
3539	F 4
3540	H 5
3542	F 6
3543	F 6
3544	F 6
3545	H 3
3546	F 5
3547	F 6
3548	H 3
3549	F 5
3550	G 4
3551	H 4
3552	H 3
3553	H 3
3554	H 2
3555	G 3
3556	H 1
3557	H 5
3558	H 5
3559	B 6
3560	H 5
3561	C 6
3562	H 5
3563	H 5
3564	H 6
3565	H 6
3566	F 5
3568	G 2
3570	H 2
3571	H 2
3572	G 2
3573	F 2
3574	E 4
3575	F 4
3576	E 4
3578	C 2
3579	B 3
3580	B 4
3581	D 5
3587	B 3
3589	G 5
3590	C 5
3592	H 4
3593	H 5
3594	G 3
3595	E 3
3596	G 6
3600	G 5
3601	F 3
3602	D 6
3603	D 6
3604	H 3
3605	H 3
3606	E 5
3607	H 1
3609	H 2
3610	G 1
3611	G 1
3616	B 2
3617	D 4
3618	D 4
3619	C 2
3625	H 2
3626	F 4
3628	H 4
3629	F 3
3630	G 2
3631	G 5
3635	H 5
3636	F 4
3637	F 5
3638	G 3
3639	F 5
3640	H 4
3641	H 5
3642	F 4
3643	F 5
3647	F 5
3648	H 3
3649	H 3
3650	G 4
3651	G 4
3652	G 3
3653	H 5
3654	G 3
3655	H 5
3656	G 2
3657	G 5
3658	G 3
3659	H 5
3660	G 2
3664	G 3
3665	H 5
3666	F 4
3667	F 5
3668	H 2
3669	H 2
3670	H 2
3671	H 2
3672	H 2
3673	H 3
3674	H 3
3675	H 3
3677	G 3
3678	F 2
3680	E 3
3681	B 2
3682	E 3
3684	F 2
3685	D 4
3686	D 4
3687	D 2
3688	D 2
3689	C 2
3690	C 2
3691	D 1
3692	D 1
3693	D 1
3694	D 1
3695	F 1
3696	F 1
3697	F 1
3698	F 1
3701	D 3
3702	D 3
3703	D 3
3704	D 3
3705	F 2
3706	F 1
3707	E 5
3708	D 5
3709	B 6
3710	B 5
3711	B 6
3712	C 5
3713	B 6
3714	B 5
3715	B 6
3716	B 5
3717	B 5
3718	C 5
3719	C 6
3720	C 5
3721	C 6
3722	C 5
3723	C 6
3724	C 5
3725	C 6
3726	C 5
3727	H 4
3728	F 4
3729	C 5
3730	C 4
3731	C 6
3732	C 5
3733	C 5
3734	D 4
3735	D 6
3736	C 6
3737	G 2
3738	H 6
3739	D 4
3740	D 4
3741	G 6
3742	E 4
3743	D 4
3744	D 5
3745	D 4
3746	E 5
3747	E 3
3748	E 5
3749	E 5
3750	H 3
3751	E 4
3752	E 5
3753	C 5
3754	F 2
3756	F 5
3757	E 5
3758	F 6
3759	E 5
3761	G 1
3762	F 2
3764	B 1
3765	D 5
3766	E 5
3767	C 3
3768	B 3
3769	G 1
3771	F 6
3772	G 6
3773	D 1
3774	D 1
3775	D 1
3776	D 1
3777	E 3
3778	E 3
3779	C 2
3780	B 3
3781	C 2
3782	C 3
3783	D 3
3784	D 2
3785	C 1
3787	C 1
3788	B 1
3789	B 1
3790	C 1
3791	C 2
3800	C 2
3801	C 6
3802	D 4
3803	C 6
3804	D 5
3811	E 4
3814	E 2
3815	F 1
3816	G 4
3817	G 5
3821	F 1
3822	H 6
3823	E 3
3824	E 3
3826	B 5
3827	B 6
3900	H 2
3901	H 2
3902	G 2
3903	G 2
3904	B 5
3905	C 5
6625	E 3
6626	B 1
6627	E 6
6629	C 1
6631	G 4
7625	G 5
7626	G 2
7627	G 5
7628	F 3
7629	G 5
7630	G 4
7631	H 5
7632	H 4
7633	G 5
7634	G 3
7635	H 5
7636	G 3
7637	F 5
7638	F 3
7639	G 4
7640	G 4
7641	G 5
7642	G 4
7643	H 5
7644	G 3
7645	H 5
7646	G 3
7647	G 5
7648	G 3
7651	C 6
7652	D 4
7659	G 1
7660	G 1
7661	G 2
7663	H 2
7664	G 2
7665	C 6
7666	D 4
7701	F 5
7702	B 5
7703	E 2
7706	C 2
7708	F 4
7720	G 1
7721	H 6

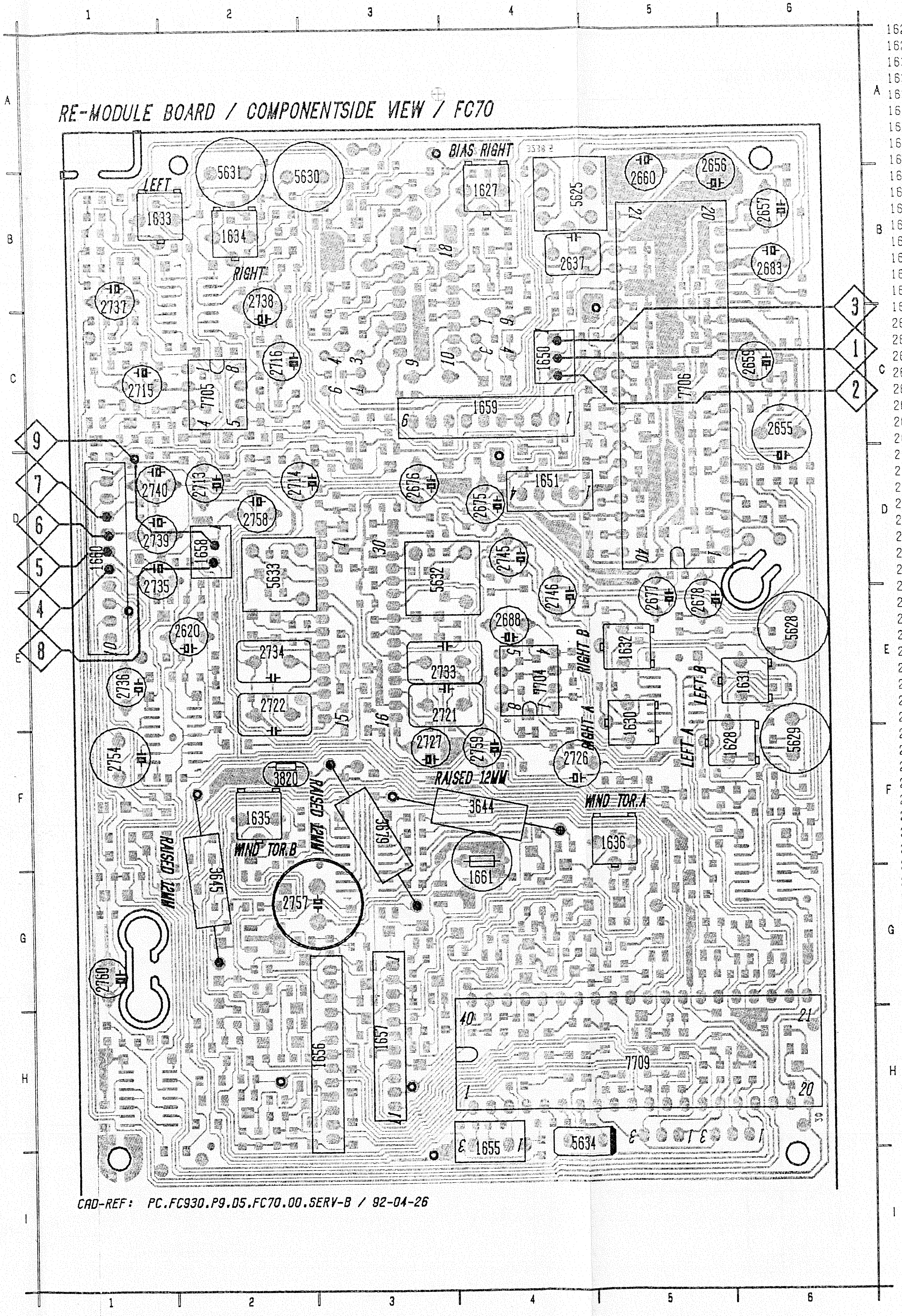

RE-MODULE BOARD / COPPERSIDE VIEW / FC70

CAD-REF: PC.FC930.P9.D5.FC70.00.SERV-A / 92-04-26


3
4
5
6
A
B
C
D
E
F
G
H
I

RSIDE VIEW / FC70

ERV-A / 92-04-26

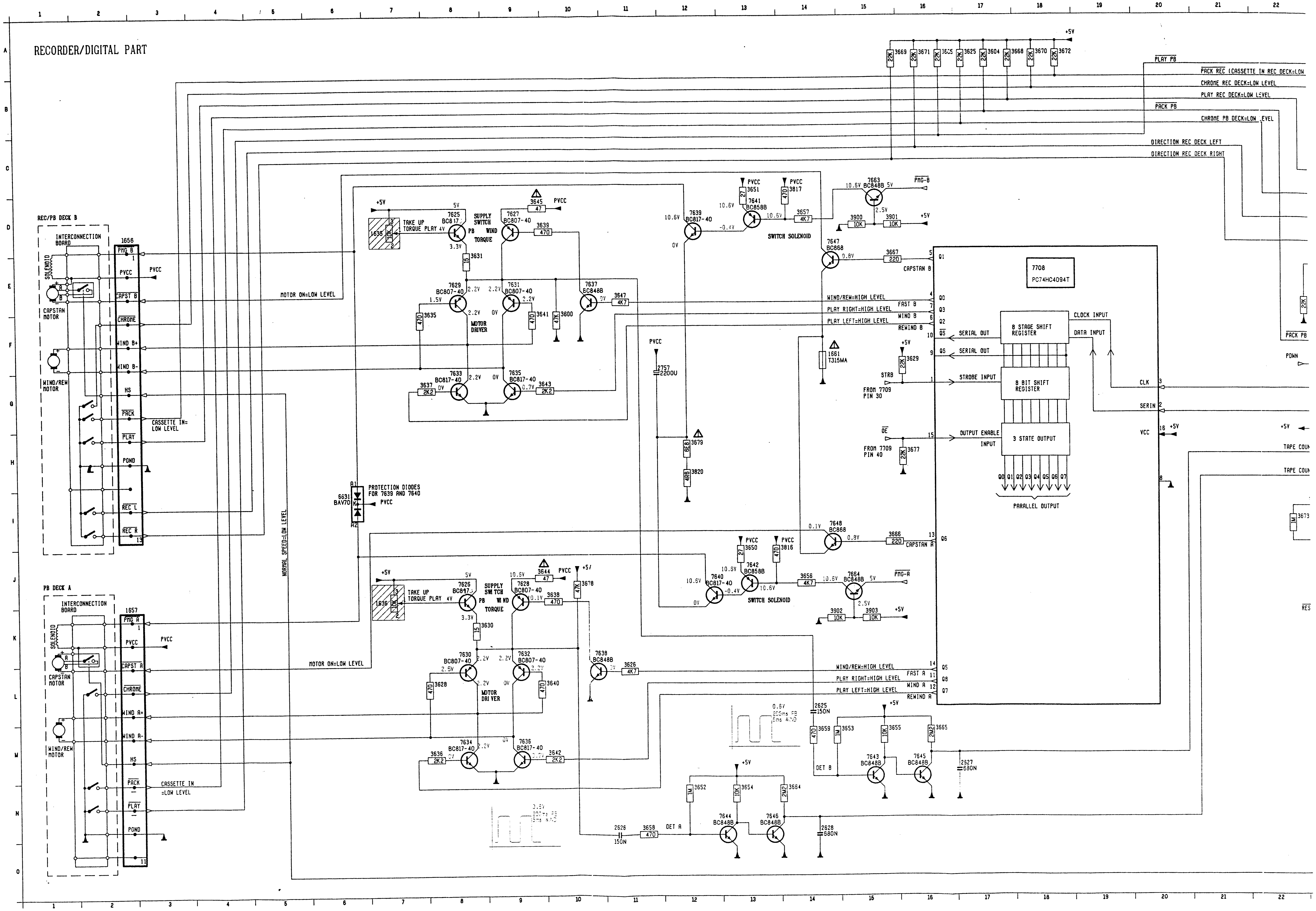

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
BIAS RIGHT
LEFT
RIGHT
RIGHT B
RIGHT A
LEFT B
LEFT A
RAISED 12MM
WIND TOR.A
WIND TOR.B
1
2
3
4
5
6
7
8
9

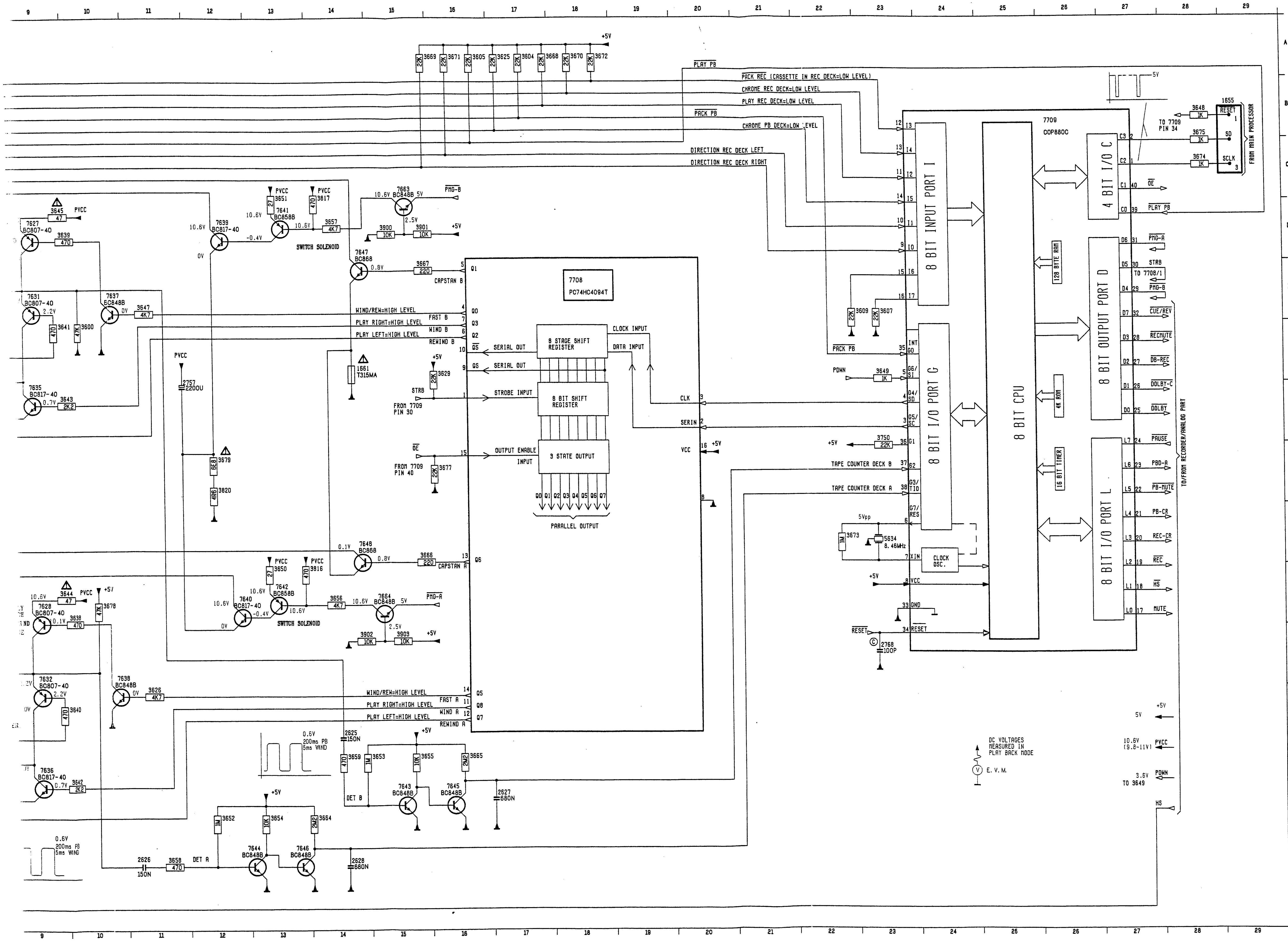
RE-MODULE BOARD / COMPONENTSIDE VIEW / FC70

CAD-REF: PC.FC930.P9.D5.FC70.00.SERV-B / 92-04-26

1627	B	4
1628	F	5
1630	E	5
1631	E	6
1632	E	5
1633	B	1
1634	B	2
1635	F	2
1636	F	5
1650	C	4
1651	D	4
1655	H	4
1656	H	3
1657	H	3
1658	D	2
1659	C	4
1660	D	1
1661	G	4
2620	E	2
2637	B	4
2655	C	6
2656	A	5
2657	B	6
2659	C	6
2660	B	5
2675	D	4
2676	D	3
2677	E	5
2678	E	5
2683	B	6
2688	E	4
2713	D	2
2714	D	2
2715	C	1
2716	C	2
2721	E	3
2722	E	2
2726	F	4
2727	F	3
2733	E	3
2734	E	2
2735	D	1
2736	E	1
2737	B	1
2738	B	2
2739	D	1
2740	D	1
2745	D	4
2746	E	4
2754	F	1
2757	G	2
2758	D	2
2759	F	4
2760	G	1
3644	F	4
3645	G	2
3679	F	3
3820	F	2
5625	B	4
5628	E	6
5629	F	6
5630	B	3
5631	B	2
5632	D	3
5633	D	2
5634	H	4
7704	E	4
7705	C	2
7706	C	5
7709	H	5

RECORDER/DIGITAL PART


REC/PB DECK B
INTERCONNECTION BOARD
SOLENOID
CAPSTAN MOTOR
WIND/REW MOTOR
1656
PMG B
PVCC
CAPST B
CHROME
WIND B+
WIND B-
HS
PACK
PLAY
PGND
REC L
REC R
CASSETTE IN= LOW LEVEL
MOTOR ON=LOW LEVEL
PB DECK A
1657
PMG A
CAPST A
WIND A+
WIND A-
CASSETTE IN =LOW LEVEL
NORMAL SPEED=LOW LEVEL
PROTECTION DIODES FOR 7639 AND 7640
6631 BAV70
TAKE UP TORQUE PLAY
SUPPLY SWITCH
PB WIND TORQUE
MOTOR DRIVER
7625 BC817
7627 BC807-40
7629 BC807-40
7631 BC807-40
7633 BC817-40
7635 BC817-40
7637 BC848B
7626 BC817
7628 BC807-40
7630 BC807-40
7632 BC807-40
7634 BC817-40
7636 BC817-40
7638 BC848B
7639 BC817-40
7640 BC817-40
7641 BC858B
7642 BC858B
SWITCH SOLENOID
7663 BC848B
7664 BC848B
7647 BC868
7648 BC868
1661 T315MA
2757 2200U
7708 PC74HC4094T
8 STAGE SHIFT REGISTER
8 BIT SHIFT REGISTER
3 STATE OUTPUT
PARALLEL OUTPUT
CLOCK INPUT
DATA INPUT
SERIAL OUT
STROBE INPUT
OUTPUT ENABLE INPUT
STRB FROM 7709 PIN 30
OE FROM 7709 PIN 40
CLK
SERIN
VCC
CAPSTAN B
CAPSTAN A
WIND/REW=HIGH LEVEL
PLAY RIGHT=HIGH LEVEL
PLAY LEFT=HIGH LEVEL
FAST B
WIND B
REWIND B
FAST A
WIND A
REWIND A
PLAY PB
PACK REC (CASSETTE IN REC DECK=LOW
CHROME REC DECK=LOW LEVEL
PLAY REC DECK=LOW LEVEL
PACK PB
CHROME PB DECK=LOW LEVEL
DIRECTION REC DECK LEFT
DIRECTION REC DECK RIGHT
POWN
TAPE COUN
RES
PMG-B
PMG-A
DET A
DET B
7643 BC848B
7644 BC848B
7645 BC848B
7646 BC848B
2625 150N
2626 150N
2627 680N
2628 680N
0.6V 200ms PB 5ms W/ND
+5V


+5V
3669 3671 3605 3625 3604 3668 3670 3672
22K
PLAY PB
PACK REC (CASSETTE IN REC DECK=LOW LEVEL)
CHROME REC DECK=LOW LEVEL
PLAY REC DECK=LOW LEVEL
PACK PB
CHROME PB DECK=LOW LEVEL
DIRECTION REC DECK LEFT
DIRECTION REC DECK RIGHT
7709
COP880C
8 BIT INPUT PORT I
8 BIT CPU
4 BIT I/O C
8 BIT OUTPUT PORT D
8 BIT I/O PORT G
8 BIT I/O PORT L
128 BYTE RAM
4K ROM
16 BIT TIMER
CLOCK OSC.
RESET
SD
SCLK
1655
TO 7709 PIN 34
FROM MAIN PROCESSOR
TO/FROM RECORDER/ANALOG PART
OE
PLAY PB
PMG-A
STRB
TO 7708/1
PMG-B
CUE/REV
RECMUTE
DB-REC
DOLBY-C
DOLBY
PAUSE
PBD-A
PB-MUTE
PB-CR
REC-CR
REC
HS
MUTE
PACK PB
PDWN
TAPE COUNTER DECK B
TAPE COUNTER DECK A
5Vpp
5634
8.46MHz
2768
100P
7708
PC74HC4094T
8 STAGE SHIFT REGISTER
8 BIT SHIFT REGISTER
3 STATE OUTPUT
CLOCK INPUT
DATA INPUT
SERIAL OUT
STROBE INPUT
OUTPUT ENABLE INPUT
PARALLEL OUTPUT
FROM 7709 PIN 30
FROM 7709 PIN 40
CLK
SERIN
VCC
CAPSTAN B
CAPSTAN A
WIND/REW=HIGH LEVEL
PLAY RIGHT=HIGH LEVEL
PLAY LEFT=HIGH LEVEL
FAST B
WIND B
REWIND B
FAST A
WIND A
REWIND A
1661
T315MA
2757
2200U
SWITCH SOLENOID
7627 BC807-40
7631 BC807-40
7635 BC817-40
7637 BC848B
7639 BC817-40
7641 BC858B
7663 BC848B
7647 BC868
7648 BC868
7628 BC807-40
7632 BC807-40
7636 BC817-40
7638 BC848B
7640 BC817-40
7642 BC858B
7664 BC848B
7643 BC848B
7645 BC848B
7644 BC848B
7646 BC848B
DET A
DET B
0.6V
200ms PB
5ms WIND
DC VOLTAGES MEASURED IN PLAY BACK MODE
E.V.M.
5V
+5V
10.6V (9.8-11V)
PVCC
3.6V
TO 3649
PDWN
HS

1635	D 7
1636	J 7
1655	B29
1656	D 2
1657	K 2
1661	F14
2625	L14
2626	N11
2627	M16
2628	N14
2757	F11
2768	K23
3600	F10
3604	A17
3605	A16
3607	E23
3609	E22
3625	A17
3626	L11
3628	L 8
3629	F16
3630	K 8
3631	E 8
3635	F 7
3636	M 8
3637	G 8
3638	J10
3639	D10
3640	L 9
3641	F 9
3642	M10
3643	G10
3644	J 9
3645	D 9
3647	E11
3648	B28
3649	F23
3650	J13
3651	C13
3652	N12
3653	M14
3654	N13
3655	M15
3656	J14
3657	D14
3658	N11
3659	M14
3664	N14
3665	M16
3666	I15
3667	E15
3668	A17
3669	A15
3670	A18
3671	A16
3672	A18
3673	I22
3674	C28
3675	B28
3677	H16
3678	J10
3679	H12
3750	G23
3816	J13
3817	C14
3820	H12
3900	D15
3901	D15
3902	K14
3903	K15
5634	I23
6631	I 6
7625	D 8
7626	J 8
7627	D 9
7628	J 9
7629	E 8
7630	K 8
7631	E 9
7632	K 9
7633	G 8
7634	M 8
7635	G 9
7636	M 9
7637	E10
7638	K10
7639	D12
7640	J12
7641	D13
7642	J13
7643	M15
7644	N13
7645	M16
7646	N13
7647	D14
7648	I14
7663	C15
7664	J15
7708	E18
7709	B26

Adjustment table

General

Adjustment	Cassette	Recorder	Measure on	Read on	Adjust	
					with	to
Motor speed	SBC 420 3150 Hz		◇8 or ◇9 or DCC out	Frequency counter		
High speed[1]		PLAY Deck A PLAY Deck B			3704 on Deck A 3704 on Deck B	6300 Hz ± 0,3% 6300 Hz ± 0,3%
Normal speed	4822 397 30071	PLAY Deck A PLAY Deck B			3705 on Deck A 3705 on Deck B	3150 Hz ± 0,3% 3150 Hz ± 0,3%
Wow & Flutter		PLAY Deck A PLAY Deck B		Wow & Flutter meter	check only (normal speed)	≤ 0,15% WGHT
Azimuth	SBC 420 10 kHz 4822 397 30071	PLAY Deck A PLAY Deck B		mV-meter	Left hand screw (normal direction) Right hand screw (reverse direction)	max. output left = right
Take up torque	811CTM 4822 395 30054	PLAY Deck A High speed A		811CTM	1636 for normal speed for high speed check only	45 - 50 g-cm
		PLAY Deck B High speed B			1635 for normal speed for high speed check only	40 - 45 g-cm

Playback

Adjustment	Source	Recorder	Measure on	Read on	Adjust	
					with	to
Playback Sensitivity [2]	Dolby reference level cassette 200nWb/m	PLAY both decks	◇8 for left channel ◇9 for right channel	V-meter	1628 Deck A left 1630 Deck A right 1631 Deck B left 1632 Deck B right	550 mV ± 0,5dB
Playback [2] Frequ. response	SBC 420 4822 397 30071				check only	Limits see Fig.1

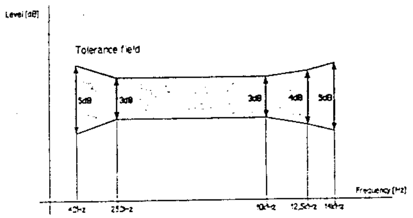


Fig. 1

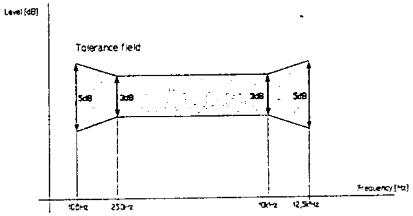


Fig. 2

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[1] To switch to High Speed in PLAY mode use the Service Test Program. **Note** In the Service Testprogram no output via DCC out respectiveley phones possible.

[2] Dolby switched off.

Recording for sets without HX-PRO

Adjustment	Input	Recorder	Measure on	Read on	Adjust	
					with	to
Bias	-	Recording Deck CrO_2 mode	◇2⇔◇1 ◇3⇔◇1	mV meter	1626 1627	210mV 85kHz
		Recording Deck Fe mode	◇2⇔◇1 ◇3⇔◇1	mV meter	check only	140mV ±0.5dB 85kHz
Recording sensitivity for sets without ALC	◇6 ◇7 65mV / 315Hz	Recording Deck CrO_2 mode	◇2⇔◇1 ◇3⇔◇1	mV meter	1633 1634	25mV [3] (200nWb/m) 315Hz
		Recording Deck Fe mode	◇2⇔◇1 ◇3⇔◇1	mV meter	check only	21mV ±0,5dB [3] 315Hz
Recording sensitivity for sets with ALC	◇6 ◇7 500mV / 315Hz	Recording Deck CrO_2 mode	◇2⇔◇1 ◇3⇔◇1	mV meter	1633 1634	30mV [3] (250nWb/m) 315Hz
		Recording Deck Fe mode	◇2⇔◇1 ◇3⇔◇1	mV meter	check only	25mV ±0,5dB [3] 315Hz

Overall measurements

Adjustment	Input	Recorder	Measure on	Read on	Adjust	
					with	to
Overall sensitivity and distortion for sets without ALC	◇6 ◇7 70mV / 315Hz	Recording deck CrO_2 mode	◇4 ◇5	mV meter	check	500mV ±1dB[4] d ≤ 3%[5]
Overall sensitivity and distortion for sets with ALC	◇6 ◇7 70mV / 315Hz	Recording deck CrO_2 mode	◇4 ◇5	mV meter	check	600mV ±1dB[4] d ≤ 3%[5]
Frequency response	◇6 ◇7 7mV	Recording deck CrO_2 mode	◇4 ◇5	mV meter	check	limits see fig.2[6]

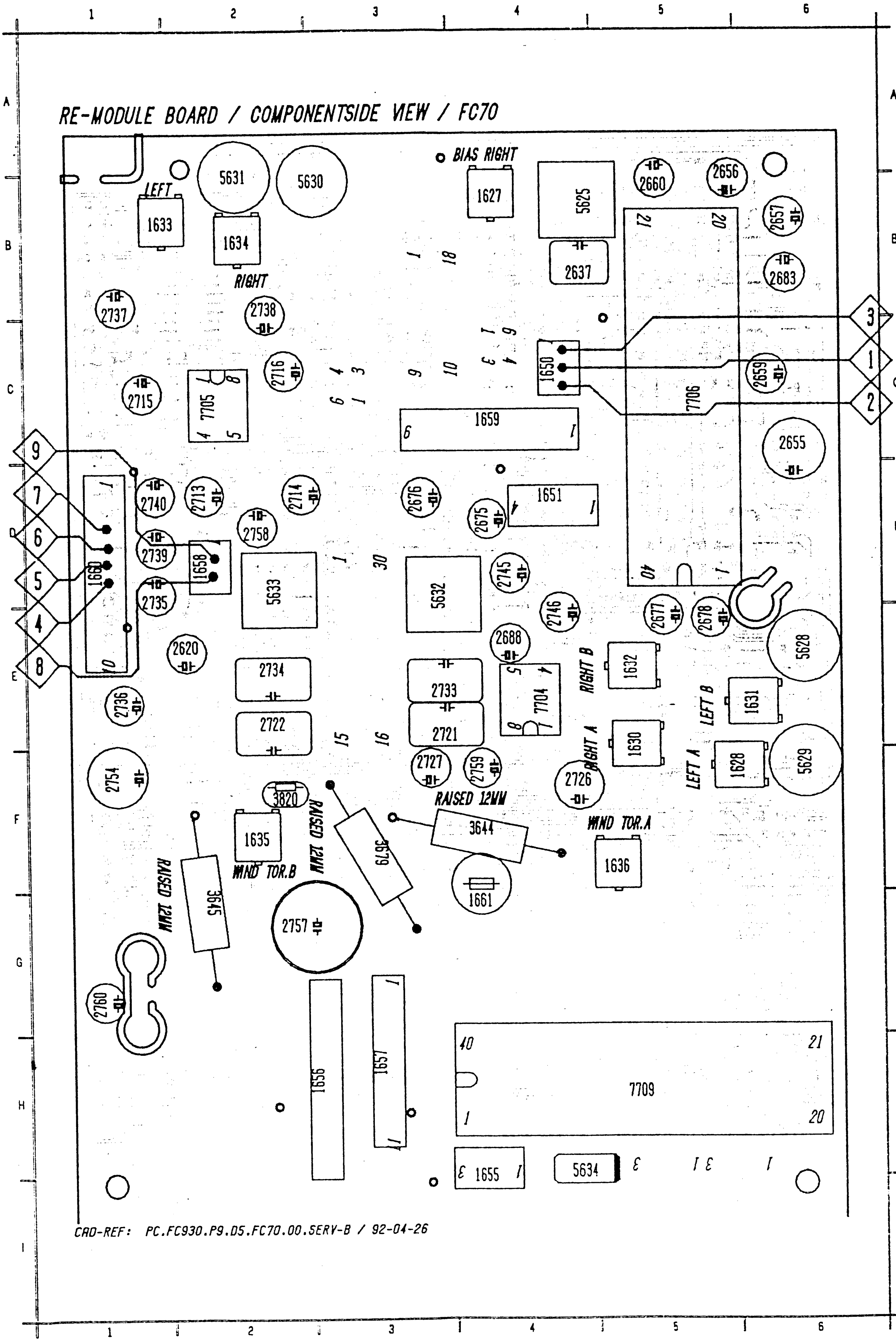
[3] Use a low pass filter to attenuate the bias component or shortcircuit the bias oscillator (pin 16/18 of 7706)

[4] If overall sensitivity is wrong readjust recording sensitivity and remeasure.

[5] If distortion is too high increase the bias and remeasure.

[6] If high frequencies are too low decrease bias and remeasure.

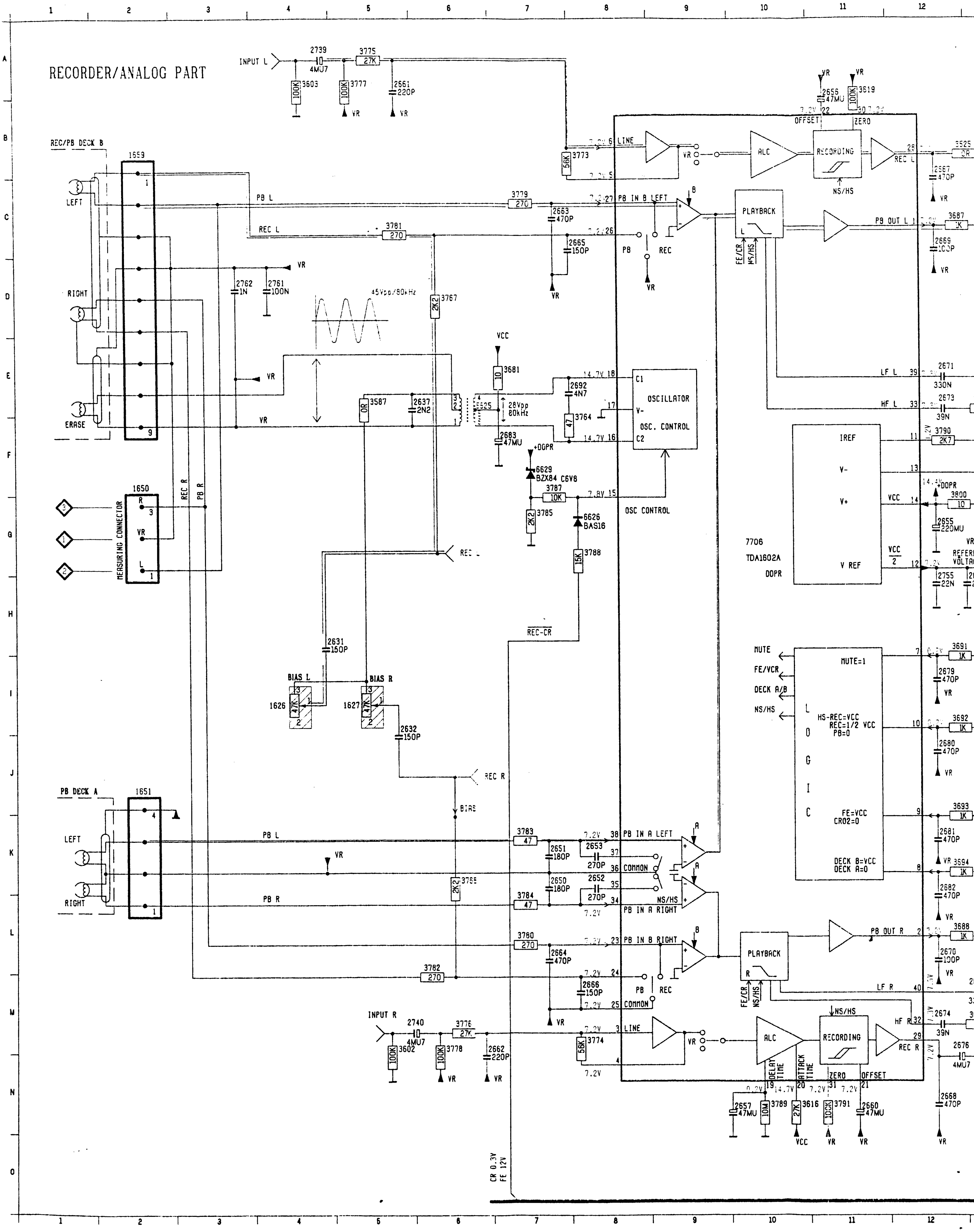
RE-MODULE BOARD / COMPONENTSIDE VIEW / FC70


1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
BIAS RIGHT
LEFT
RIGHT
5631
5630
1627
5625
2660
2656
2657
1633
1634
2637
2683
2737
2738
1650
3
1
2
2716
2715
7705
1659
2659
7706
2655
9
7
6
5
4
8
1660
2740
2713
2714
2676
2675
1651
2739
2758
1658
2735
5633
5632
2745
2746
2677
2678
5628
2620
2688
1632
RIGHT B
2734
2733
7704
1631
LEFT B
2736
2722
2721
RIGHT A
1630
2727
2759
2726
1628
LEFT A
5629
2754
3820
RAISED 12MM
WIND TOR.A
1635
WIND TOR.B
3679
3644
1636
3645
1661
2757
2760
1656
1657
7709
1655
5634
15
16
30
40
21
20
10
18

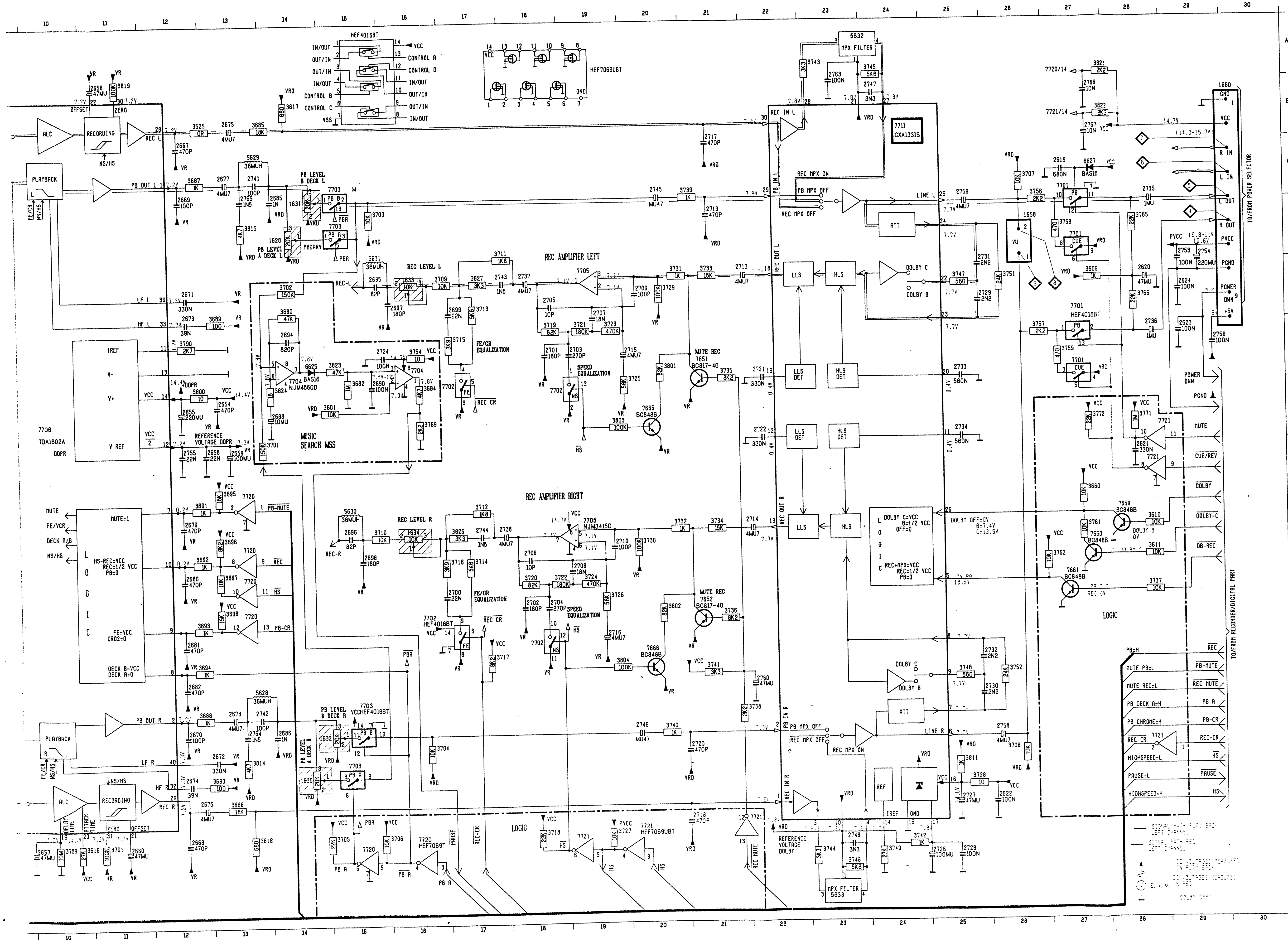
CAD-REF: PC.FC930.P9.D5.FC70.00.SERV-B / 92-04-26

1627	B	4
1628	F	5
1630	E	5
1631	E	6
1632	E	5
1633	B	1
1634	B	2
1635	F	2
1636	F	5
1650	C	4
1651	D	4
1655	H	4
1656	H	3
1657	H	3
1658	D	2
1659	C	4
1660	D	1
1661	G	4
2620	E	2
2637	B	4
2655	C	6
2656	A	5
2657	B	6
2659	C	6
2660	B	5
2675	D	4
2676	D	3
2677	E	5
2678	E	5
2683	B	6
2688	E	4
2713	D	2
2714	D	2
2715	C	1
2716	C	2
2721	E	3
2722	E	2
2726	F	4
2727	F	3
2733	E	3
2734	E	2
2735	D	1
2736	E	1
2737	B	1
2738	B	2
2739	D	1
2740	D	1
2745	D	4
2746	E	4
2754	F	1
2757	G	2
2758	D	2
2759	F	4
2760	G	1
3644	F	4
3645	G	2
3679	F	3
3820	F	2
5625	B	4
5628	E	6
5629	F	6
5630	B	3
5631	B	2
5632	D	3
5633	D	2
5634	H	4
7704	E	4
7705	C	2
7706	C	5
7709	H	5

RECORDER/ANALOG PART

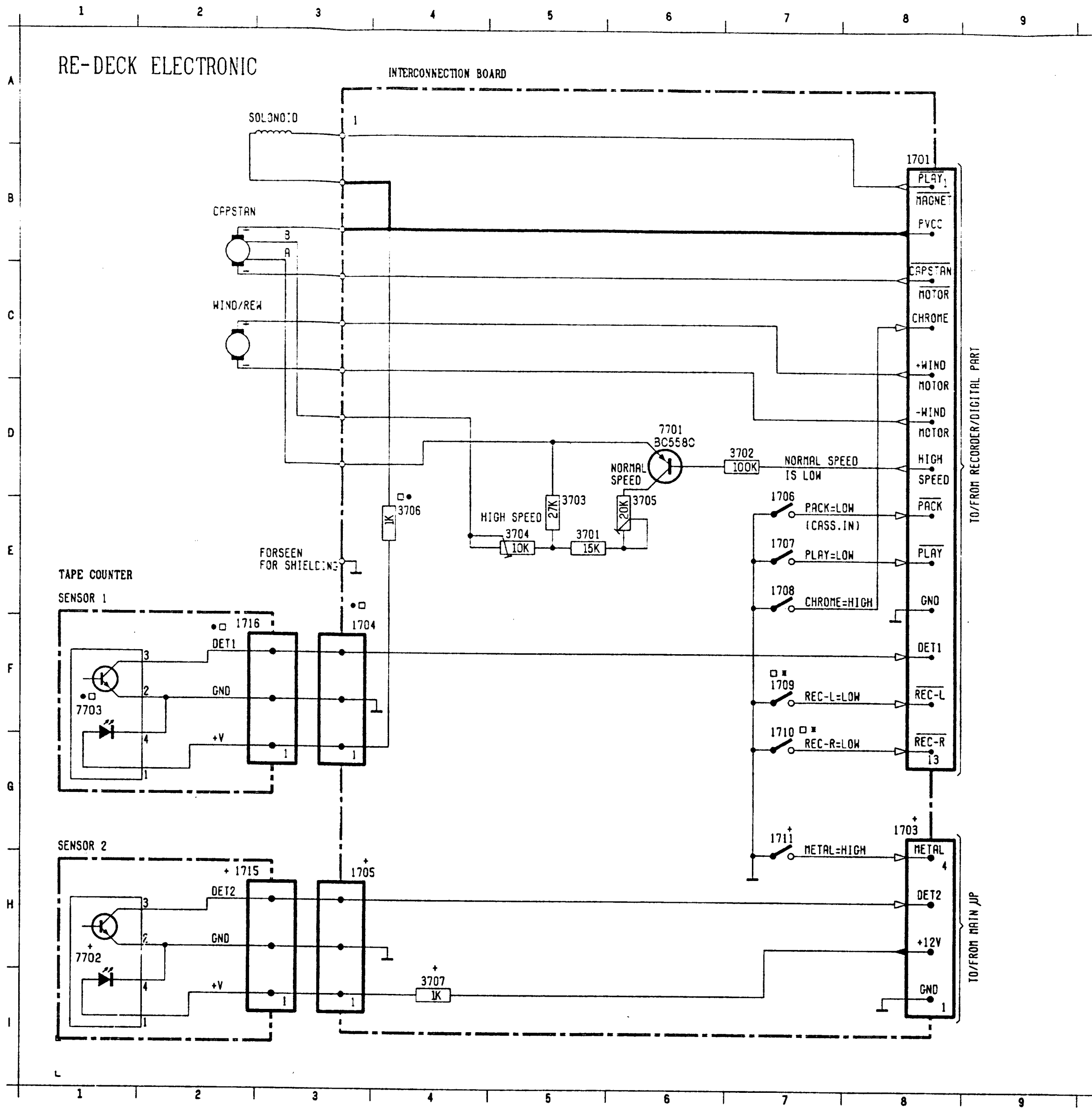


INPUT L
2739
4MU7
3775
27K
3603
100K
3777
2561
220P
VR
REC/PB DECK B
1659
LEFT
RIGHT
ERASE
PB L
REC L
3779
270
3781
2663
470P
2665
150P
2762
1N
2761
100N
45Vpp/80kHz
2K2
3767
VCC
3681
3587
0R
2637
2N2
5525
28Vpp
80kHz
2683
47MU
+DDPR
6629
BZX84 C6V8
3787
10K
3785
6626
BAS16
3788
15K
OSC CONTROL
REC L
REC-CR
2692
4N7
3764
OSCILLATOR
V-
OSC. CONTROL
C1
C2
LINE
3773
56K
PB IN B LEFT
PB
REC
ALC
RECORDING
OFFSET
ZERO
NS/HS
PLAYBACK
FE/CR
2655
47MU
3619
PB OUT L
3687
1K
2669
100P
REC L
3525
2567
470P
LF L
HF L
2671
330N
2673
39N
IREF
V-
V+
V REF
VCC
VCC/2
3790
2K7
3800
10
2655
220MU
REFERENCE VOLTAGE
2755
22N
7706
TDA1602A
DDPR
1650
MEASURING CONNECTOR
REC R
PB R
2631
150P
BIAS L
BIAS R
1626
1627
47K
2632
150P
REC R
BIAS
MUTE
FE/VCR
DECK A/B
NS/HS
LOGIC
MUTE=1
HS-REC=VCC
REC=1/2 VCC
PB=0
FE=VCC
CR02=0
DECK B=VCC
DECK A=0
3691
2679
470P
3692
2680
470P
3693
2681
470P
3694
2682
470P
PB DECK A
1651
3783
47
2651
180P
2653
270P
PB IN A LEFT
COMMON
3765
2650
180P
2652
270P
3784
47
PB IN A RIGHT
3780
270
2664
470P
PB IN B RIGHT
3782
270
2666
150P
PB OUT R
3688
2670
100P
LF R
HF R
2674
39N
REC R
2676
4MU7
INPUT R
2740
4MU7
3776
27K
3602
100K
3778
100K
2662
220P
3774
56K
DELAY TIME
ATTACK TIME
2657
47MU
3789
10M
3616
27K
3791
100K
2660
47MU
2668
470P
CR 0.3V
FE 12V
7.2V
14.7V


ALC
RECORDING
OFFSET
ZERO
REC L
PLAYBACK
PB OUT L
NS/HS
FE/CR
HEF4016BT
IN/OUT
OUT/IN
CONTROL A
CONTROL B
CONTROL C
CONTROL D
VCC
VSS
HEF7069UBT
GND
PB LEVEL B DECK L
PB LEVEL A DECK L
PBDRAV
REC LEVEL L
REC AMPLIFIER LEFT
FE/CR EQUALIZATION
SPEED EQUALIZATION
MUTE REC
MUSIC SEARCH MSS
NJM4560D
BAS16
7706
TDA1602A
DDPR
IREF
V-
V+
V REF
REFERENCE VOLTAGE DDPR
MUTE
FE/VCR
DECK A/B
NS/HS
LOGIC
MUTE=1
HS-REC=VCC
REC=1/2 VCC
PB=0
FE=VCC
CR02=0
DECK B=VCC
DECK A=0
PB-MUTE
REC
HS
PB-CR
REC LEVEL R
REC AMPLIFIER RIGHT
NJM3415D
BC817-40
BC848B
PB LEVEL B DECK R
PB LEVEL A DECK R
HEF4016BT
PB OUT R
LF L
HF L
LF R
HF R
REC R
DELAY TIME
ATTACK TIME
PBR
PBA
PAUSE
REC-CR
HEF7069T
HEF7069UBT
5632
MPX FILTER
7711
CXA1331S
REC IN L
PB IN L
REC OUT L
REC MPX ON
PB MPX OFF
REC MPX OFF
LINE L
ATT
LLS
HLS
DOLBY C
DOLBY B
LLS DET
HLS DET
REC OUT R
PB IN R
REC IN R
LINE R
REF
IREF
GND
REFERENCE VOLTAGE DOLBY
REC MUTE
MPX FILTER
5633
DOLBY C=VCC
B=1/2 VCC
OFF=0
REC+MPX=VCC
REC=1/2 VCC
PB=0
DOLBY OFF=0V
B=7.4V
C=13.5V
VU
1658
CUE
HEF4016BT
1660
GND
VCC
R IN
L IN
L OUT
R OUT
PVCC
PGND
POWER
DWN
+5V
TO/FROM POWER SELECTOR
POWER DWN
PGND
MUTE
CUE/REV
DOLBY
DOLBY-C
DB-REC
REC
PB-MUTE
REC MUTE
PB A
PB-CR
REC-CR
HS
PAUSE
PB=H
MUTE PB=L
MUTE REC=L
PB DECK A=H
PB CHROME=H
REC CR
HIGHSPEED=L
PAUSE=L
HIGHSPEED=H
TO/FROM RECORDER/DIGITAL PART
SIGNAL PATH PLAY BACK LEFT CHANNEL
SIGNAL PATH REC LEFT CHANNEL
DC VOLTAGES MEASURED IN PLAY BACK
DC VOLTAGES MEASURED IN REC
DOLBY OFF
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

1626	I 4
1627	I 5
1628	D14
1630	M14
1631	C14
1632	L15
1633	E16
1634	I16
1650	F 2
1651	J 2
1658	D26
1659	B 2
1660	B30
2619	C27
2620	E28
2621	H28
2622	M26
2623	F29
2624	E29
2631	H 4
2632	I 5
2637	E 5
2650	K 7
2651	K 7
2652	K 8
2653	K 8
2654	G13
2655	G12
2656	A11
2657	N 9
2658	H12
2659	H13
2660	N11
2661	A 5
2662	M 6
2663	C 7
2664	L 7
2665	C 7
2666	M 8
2667	B12
2668	N12
2669	C12
2670	L12
2671	E12
2672	M13
2673	E12
2674	M12
2675	B13
2676	M12
2677	C13
2678	L13
2679	I12
2680	J12
2681	K12
2682	K12
2683	F 7
2685	C14
2686	L14
2688	G14
2690	F15
2692	E 7
2694	F14
2695	E15
2696	I15
2697	E16
2698	I15
2699	E17
2700	J16
2701	F18
2702	J18
2703	F19
2704	J18
2705	E18
2706	I18
2707	E19
2708	J19
2709	E20
2710	I19
2713	E22
2714	I22
2715	F19
2716	K19
2717	B21
2718	N20
2719	D21
2720	M20
2721	F22
2722	G22
2724	F16
2726	N24
2727	M25
2728	N25
2729	E25
2730	L25
2731	D25
2732	K25
2733	F25
2734	G25
2735	C28
2736	F28
2737	E18
2738	I18
2739	A 4
2740	M 6
2741	C13
2742	L13
2743	E18
2744	I17
2745	C20
2746	L20
2747	B24
2748	N23
2753	D29
2754	D29
2755	H12
2756	F29
2758	L26
2759	C25
2760	K22
2761	D 4
2762	D 3
2763	A23
2764	L13
2765	C13
2766	B28
2767	B28
3525	B13
3587	E 5
3601	G15
3602	M 5
3603	A 4
3606	E27
3610	I28
3611	I28
3616	N10
3617	B14
3618	N13
3619	A11
3660	H27
3680	E14
3681	E 7
3682	F15
3684	G16
3685	B14
3686	M13
3687	C12
3688	L12
3689	E13
3690	M13
3691	H12
3692	I12
3693	J12
3694	K12
3695	H13
3696	I13
3697	J13
3698	J13
3701	G13
3702	E14
3703	D15
3704	M16
3705	N14
3706	N15
3707	C26
3708	M26
3709	E17
3710	I15
3711	D18
3712	I17
3713	E17
3714	I17
3715	F17
3716	I16
3717	K17
3718	N18
3719	F18
3720	J18
3721	F19
3722	J18
3723	F19
3724	J19
3725	F19
3726	J19
3727	N19
3728	M25
3729	E20
3730	I20
3731	E20
3732	I20
3733	E21
3734	I21
3735	F21
3736	J21
3737	J28
3738	L21
3739	C21
3740	L20
3741	K21
3742	N24
3743	A23
3744	N23
3745	A24
3746	D23
3747	E25
3748	K25
3749	N24
3751	E26
3752	K26
3754	F16
3756	C26
3757	F26
3758	D27
3759	F27
3761	I27
3762	I26
3764	F 7
3765	D28
3766	E28
3767	D 6
3768	K 6
3769	G16
3771	G28
3772	G27
3773	B 7
3774	M 8
3775	A 5
3776	M 6
3777	A 5
3778	M 6
3779	C 7
3780	L 7
3781	C 5
3782	L 6
3783	K 7
3784	L 7
3785	G 7
3787	F 7
3788	G 8
3789	N10
3790	F12
3791	N11
3800	G12
3801	F20
3802	J20
3803	G19
3804	K19
3811	M25
3814	M13
3815	D13
3821	A29
3822	B29
3823	F15
3824	G14
3826	I17
3827	E17
5625	E 6
5628	L13
5629	C13
5630	I15
5631	D15
5632	A23
5633	D23
6625	F14
6626	G 8
6627	C27
6629	F 7
7651	F21
7652	J21
7659	I28
7660	I27
7661	J27
7665	G20
7666	K20
7701	E27
7702	J16
7703	L15
7704	F14
7705	I19
7706	G10
7711	B24
7720	N16
7721	N20

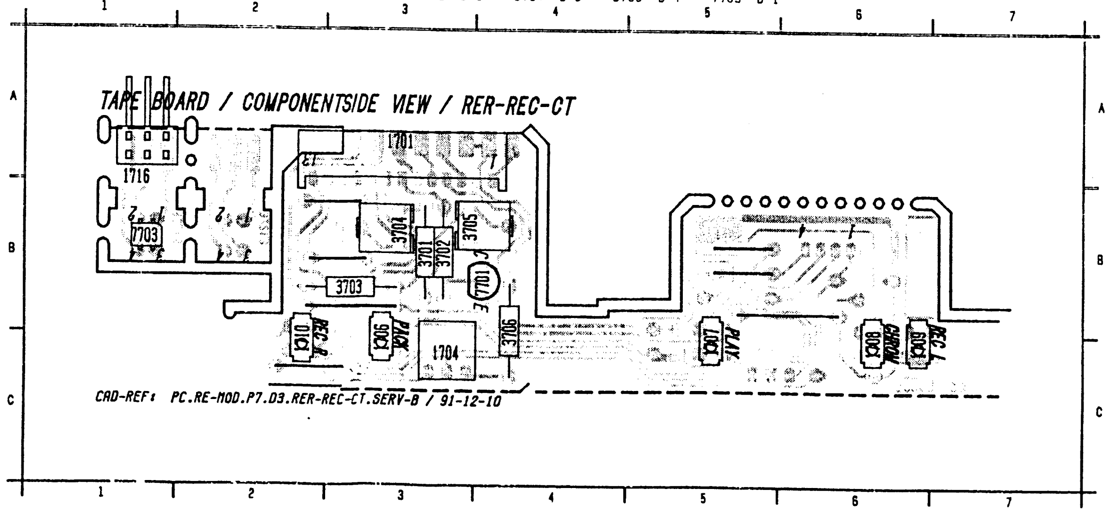
RE-DECK ELECTRONIC

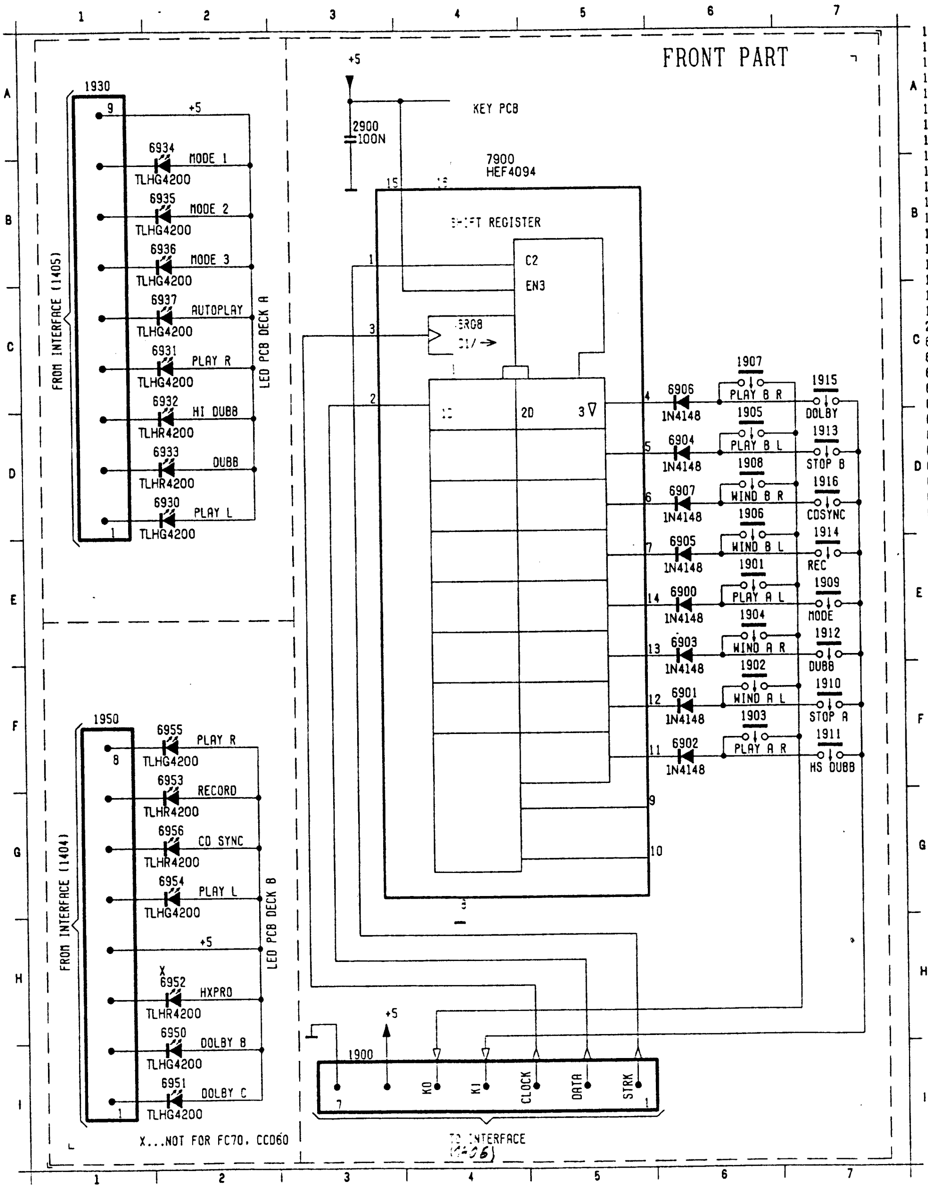

INTERCONNECTION BOARD
SOLENOID
CAPSTAN
WIND/REW
1701
PLAY
MAGNET
PVCC
CAPSTAN
MOTOR
CHROME
+WIND
MOTOR
-WIND
MOTOR
HIGH
SPEED
PACK
PLAY
GND
DET1
REC-L
REC-R
13
TO/FROM RECORDER/DIGITAL PART
7701
BC558C
NORMAL
SPEED
3702
100K
NORMAL SPEED
IS LOW
3703
27K
3705
20K
HIGH SPEED
3704
10K
3701
15K
3706
1K
1706
PACK=LOW
(CASS.IN)
1707
PLAY=LOW
1708
CHROME=HIGH
1709
REC-L=LOW
1710
REC-R=LOW
1711
METAL=HIGH
1703
METAL
DET2
+12V
GND
TO/FROM MAIN μP
FORSEEN
FOR SHIELDING
TAPE COUNTER
SENSOR 1
1716
DET1
GND
+V
7703
1704
SENSOR 2
1715
DET2
GND
+V
7702
1705
3707
1K

		METAL	RECORD	COUNTER SENSOR 1	COUNTER SENSOR 2	REVERSE	TYPE OF DECK
●	FC930 DECK A			X		X	RER-2
□	FC930 DECK B		X	X		X	RER-3
	FC910 DECK A						REN 2
□	FC910 DECK B		X	X		X	RER-3
	FC70 DECK A					X	RER-4
*	FC70 DECK B		X			X	RER-1
	FC80 DECK A					X	RER-4
*	FC80 DECK B		X			X	RER-1
+	NOT YET IN USE						

1701	B	8
1703	G	8
1704	F	3
1705	H	3
1706	D	7
1707	E	7
1708	E	7
1709	F	7
1710	F	7
1711	G	7
1715	H	2
1716	F	2
3701	E	5
3702	D	7
3703	D	5
3704	E	5
3705	D	6
3706	E	4
3707	I	4
7701	D	6
7702	H	1
7703	F	1

1701	A	3	1706	C	3	1708	C	6	1710	C	2	3701	B	3	3703	B	3	3705	B	3	7701	B	4
1704	C	3	1707	C	5	1709	C	6	1716	A	1	3702	B	3	3704	B	3	3706	B	4	7703	B	1

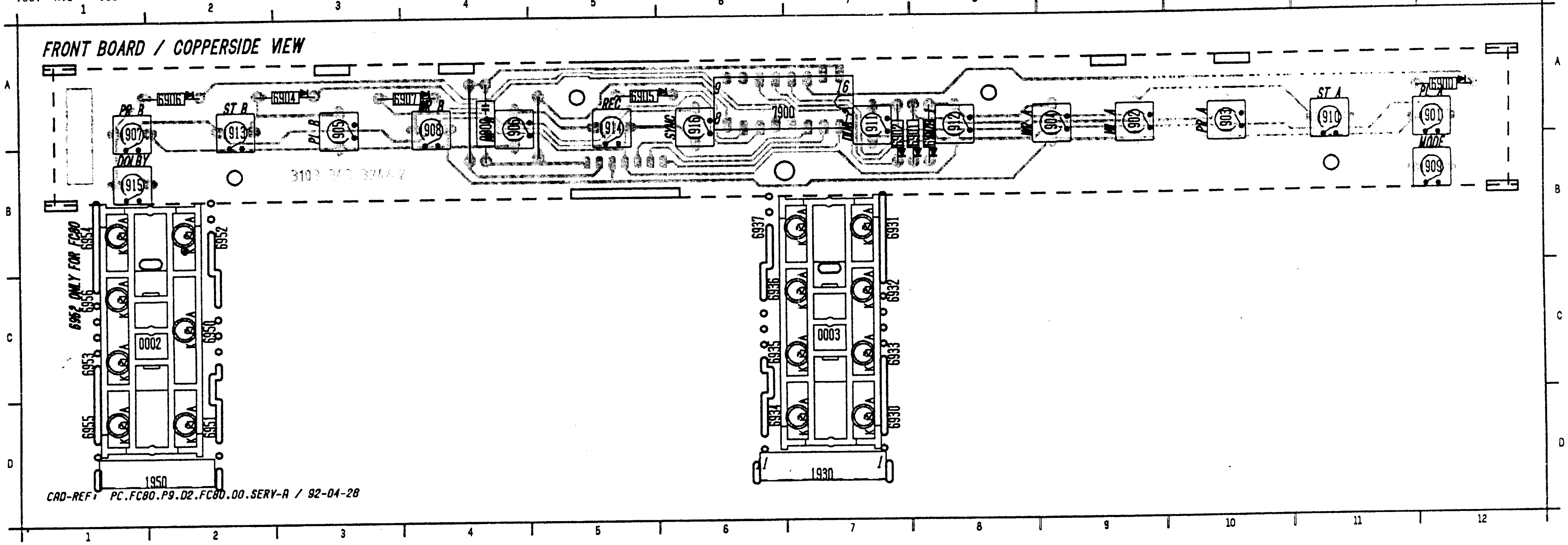

TAPE BOARD / COMPONENTSIDE VIEW / RER-REC-CT
1716
7703
1701
3704
3702
3701
3705
7701
3703
3706
1704
1710
REC-R
1706
PACK
1707
PLAY
1708
CHROM
1709
REC-L
CAD-REF: PC.RE-MOD.P7.D3.RER-REC-CT.SERV-B / 91-12-10


FRONT PART
KEY PCB
+5
2900
100N
7900
HEF4094
SHIFT REGISTER
C2
EN3
SRG8
C1/→
1D
2D
3∇
1930
1950
1900
FROM INTERFACE (1405)
FROM INTERFACE (1404)
LED PCB DECK A
LED PCB DECK B
6934 MODE 1 TLHG4200
6935 MODE 2 TLHG4200
6936 MODE 3 TLHG4200
6937 AUTOPLAY TLHG4200
6931 PLAY R TLHG4200
6932 HI DUBB TLHR4200
6933 DUBB TLHR4200
6930 PLAY L TLHG4200
6955 PLAY R TLHG4200
6953 RECORD TLHR4200
6956 CD SYNC TLHR4200
6954 PLAY L TLHG4200
X 6952 HXPRO TLHR4200
6950 DOLBY B TLHG4200
6951 DOLBY C TLHG4200
6906 1N4148
6904 1N4148
6907 1N4148
6905 1N4148
6900 1N4148
6903 1N4148
6901 1N4148
6902 1N4148
1907 PLAY B R
1905 PLAY B L
1908 WIND B R
1906 WIND B L
1901 PLAY A L
1904 WIND A R
1902 WIND A L
1903 PLAY A R
1915 DOLBY
1913 STOP B
1916 CDSYNC
1914 REC
1909 MODE
1912 DUBB
1910 STOP A
1911 HS DUBB
K0
K1
CLOCK
DATA
STRK
X...NOT FOR FC70, CCD60
TO INTERFACE
(1406)
1 2 3 4 5 6 7
A B C D E F G H I

1900	I	3
1901	E	6
1902	F	6
1903	F	6
1904	E	6
1905	D	6
1906	D	6
1907	C	6
1908	D	6
1909	E	7
1910	F	7
1911	F	7
1912	E	7
1913	D	7
1914	D	7
1915	C	7
1916	D	7
1930	A	1
1950	F	1
2900	A	3
6900	E	6
6901	F	6
6902	F	6
6903	E	6
6904	D	6
6905	E	6
6906	C	6
6907	D	6
6930	D	2
6931	C	2
6932	C	2
6933	D	2
6934	A	2
6935	B	2
6936	B	2
6937	C	2
6950	H	2
6951	I	2
6952	H	2
6953	F	2
6954	G	2
6955	F	2
6956	G	2
7900	B	4

CAD-REF. ES FC80 P9 FC80 00 SH1 D02 (92-02-03)

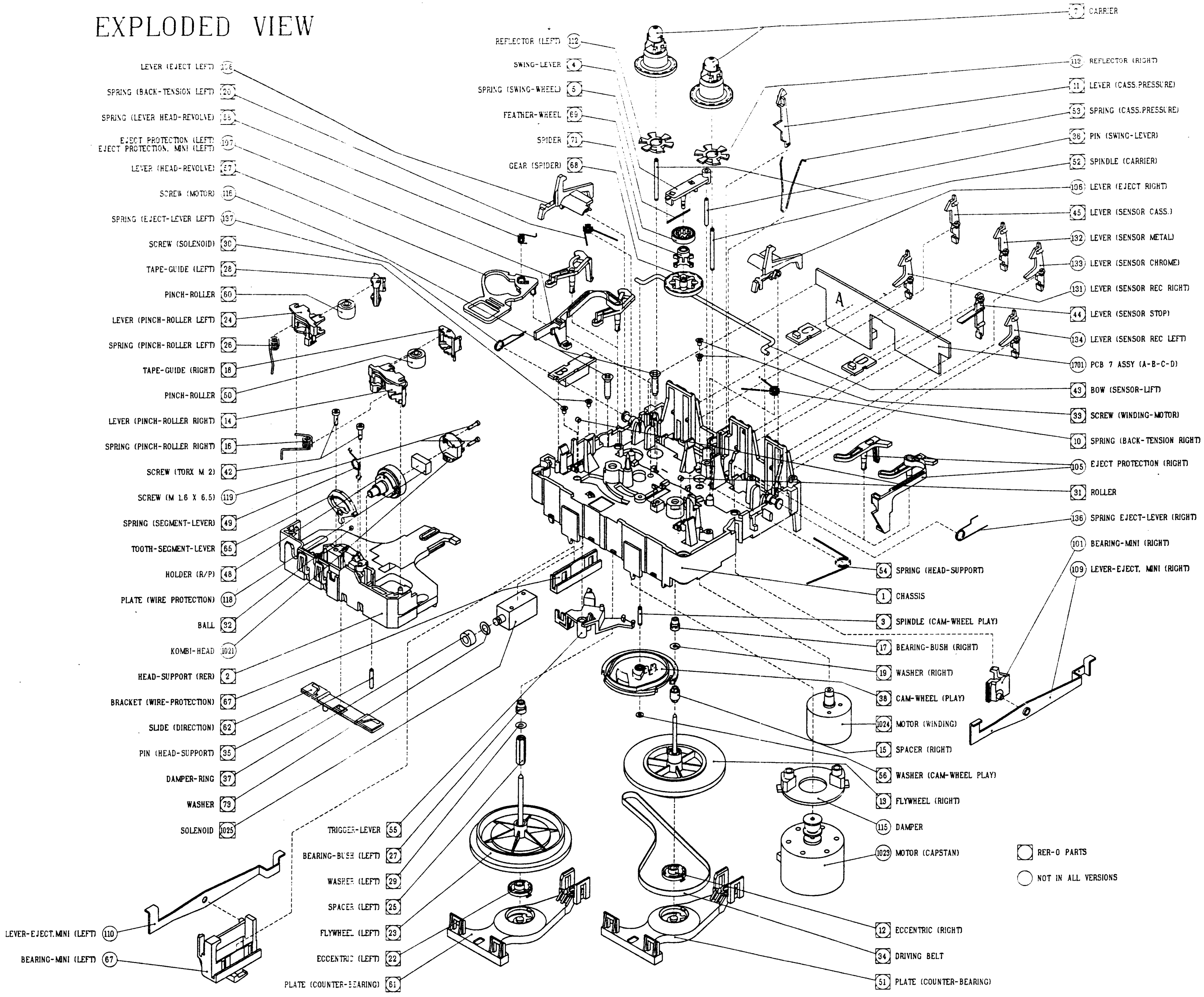
0002	C 2
0003	C 7
1901	A12
1902	A 9
1903	A10
1904	A 9
1905	A 3
1906	A 4
1907	A 1
1908	A 4
1909	B12
1910	A11
1911	A 7
1912	A 8
1913	A 2
1914	A 5
1915	B 1
1916	A 6
1930	D 7
1950	D 2
2900	A 4
6900	A12
6901	A 8
6902	A 7
6903	A 8
6904	A 3
6905	A 5
6906	A 2
6907	A 4
6930	D 7
6931	B 7
6932	C 7
6933	C 7
6934	D 6
6935	C 6
6936	C 6
6937	B 6
6950	C 2
6951	D 2
6952	B 2
6953	C 1
6954	B 1
6955	D 1
6956	C 1
7900	A 7


FRONT BOARD / COPPERSIDE VIEW

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
PB B
6906
ST B
6904
PL B
6907
RR B
907
913
905
908
906
REC
6905
914
SYNC
916
9
16
8
7900
1
911
912
904
902
PL A
903
ST A
910
PL A
6900
901
MODE
909
DOLBY
915
3103
6952 ONLY FOR FC80
6954
6956
6953
6955
6952
6950
6951
0002
1950
6937
6936
6935
6934
6931
6932
6933
6930
0003
1930
K
A

CAD-REF: PC.FC80.P9.D2.FC80.00.SERV-A / 92-04-28

EXPLODED VIEW


LEVER (EJECT LEFT) 108
SPRING (BACK-TENSION LEFT) 20
SPRING (LEVER HEAD-REVOLVE) 66
EJECT PROTECTION (LEFT) / EJECT PROTECTION, MINI (LEFT) 107
LEVER (HEAD-REVOLVE) 57
SCREW (MOTOR) 116
SPRING (EJECT-LEVER LEFT) 137
SCREW (SOLENOID) 30
TAPE-GUIDE (LEFT) 28
PINCH-ROLLER 60
LEVER (PINCH-ROLLER LEFT) 24
SPRING (PINCH-ROLLER LEFT) 26
TAPE-GUIDE (RIGHT) 18
PINCH-ROLLER 50
LEVER (PINCH-ROLLER RIGHT) 14
SPRING (PINCH-ROLLER RIGHT) 16
SCREW (TORX M 2) 42
SCREW (M 1.6 X 6.5) 119
SPRING (SEGMENT-LEVER) 49
TOOTH-SEGMENT-LEVER 65
HOLDER (R/P) 48
PLATE (WIRE PROTECTION) 118
BALL 32
KOMBI-HEAD 1021
HEAD-SUPPORT (RER) 2
BRACKET (WIRE-PROTECTION) 67
SLIDE (DIRECTION) 62
PIN (HEAD-SUPPORT) 35
DAMPER-RING 37
WASHER 73
SOLENOID 1025
LEVER-EJECT.MINI (LEFT) 110
BEARING-MINI (LEFT) 67
REFLECTOR (LEFT) 112
SWING-LEVER 4
SPRING (SWING-WHEEL) 5
FEATHER-WHEEL 69
SPIDER 71
GEAR (SPIDER) 68
TRIGGER-LEVER 55
BEARING-BUSH (LEFT) 27
WASHER (LEFT) 29
SPACER (LEFT) 25
FLYWHEEL (LEFT) 23
ECCENTRIC (LEFT) 22
PLATE (COUNTER-BEARING) 61
7 CARRIER
113 REFLECTOR (RIGHT)
11 LEVER (CASS.PRESSURE)
53 SPRING (CASS.PRESSURE)
36 PIN (SWING-LEVER)
52 SPINDLE (CARRIER)
106 LEVER (EJECT RIGHT)
45 LEVER (SENSOR CASS.)
132 LEVER (SENSOR METAL)
133 LEVER (SENSOR CHROME)
131 LEVER (SENSOR REC RIGHT)
44 LEVER (SENSOR STOP)
134 LEVER (SENSOR REC LEFT)
1701 PCB 7 ASSY (A-B-C-D)
43 BOW (SENSOR-LIFT)
33 SCREW (WINDING-MOTOR)
10 SPRING (BACK-TENSION RIGHT)
105 EJECT PROTECTION (RIGHT)
31 ROLLER
136 SPRING EJECT-LEVER (RIGHT)
101 BEARING-MINI (RIGHT)
109 LEVER-EJECT. MINI (RIGHT)
A
54 SPRING (HEAD-SUPPORT)
1 CHASSIS
3 SPINDLE (CAM-WHEEL PLAY)
17 BEARING-BUSH (RIGHT)
19 WASHER (RIGHT)
38 CAM-WHEEL (PLAY)
1024 MOTOR (WINDING)
15 SPACER (RIGHT)
56 WASHER (CAM-WHEEL PLAY)
13 FLYWHEEL (RIGHT)
115 DAMPER
1023 MOTOR (CAPSTAN)
12 ECCENTRIC (RIGHT)
34 DRIVING BELT
51 PLATE (COUNTER-BEARING)
RER-0 PARTS
NOT IN ALL VERSIONS

Mechanical partslist tape decks

14	4822 403 20239	LEVER PINCH ROLLER
16	4822 492 71106	SPRING PINCH ROLLER
18	4822 535 93315	TAPE GUIDE RIGHT
24	4822 403 20241	LEVER PINCH ROLLER
26	4822 492 71107	SPRING PINCH ROLLER
28	4822 535 93314	TAPE GUIDE LEFT
34	4822 358 31184	DRIVING BELT
50	4822 528 70793	PINCH ROLLER
60	4822 528 70793	PINCH ROLLER
115	4822 529 10254	DAMPER
116	4822 502 11866	SCREW (MOTOR)
1021	4822 249 10434	REC/PB HEAD
1021	4822 249 30181	PLAY BACK HEAD
1023	4822 361 21506	MOTOR

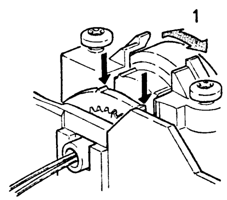
Electrical partslist tape decks

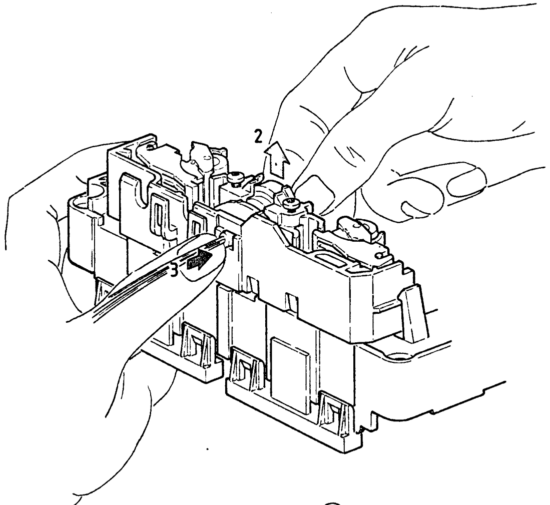
1706	4822 276 12889	
1707	4822 276 12889	
1708	4822 276 12889	
1709	4822 276 12889	
1710	4822 276 12889	
3701	4822 116 52244	
3702	4822 116 52234	
3703	4822 116 52264	
3704	4822 100 20166	
3705	4822 100 20589	
3706	4822 050 21002	
3706	4822 050 21002	
7701	5322 130 60068	BC558C
7703	4822 209 31115	NJL5165KA
7703	4822 209 31115	NJL5165KA

Complete tape transport

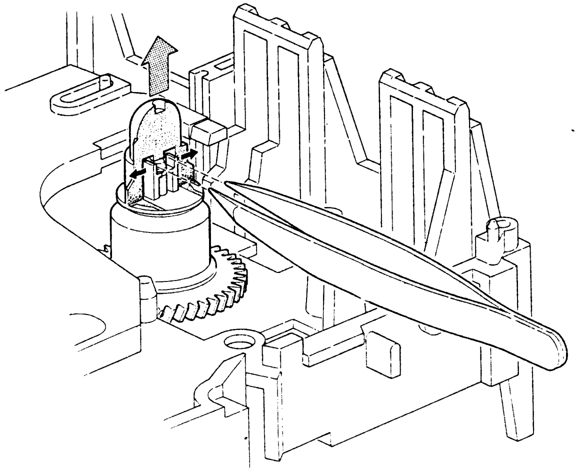
right hand deck	4822 691 20774	RER-1 TAPE DECK
left hand deck	4822 691 20776	RER-4 TAPE DECK

Demounting of rotation head

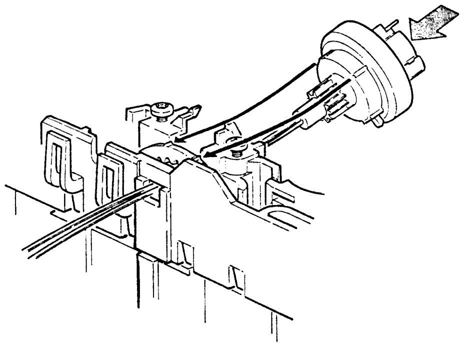




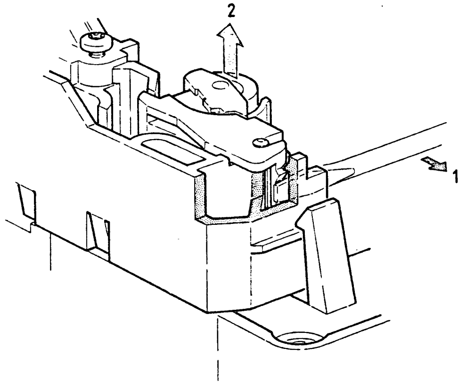
Demounting of carrier ⑦



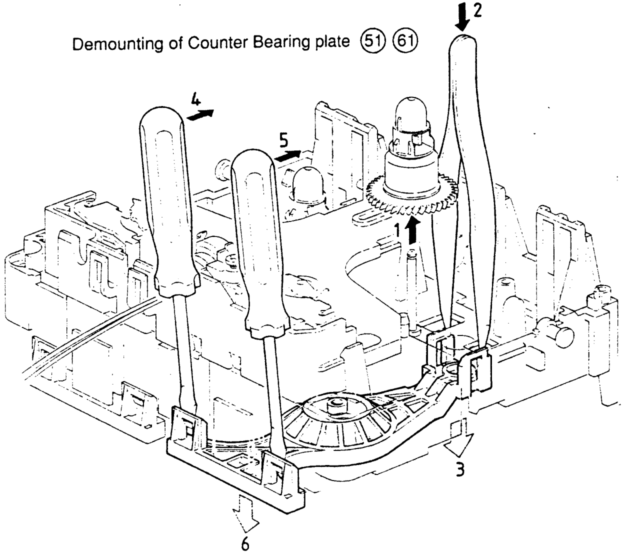
Mounting of rotation head



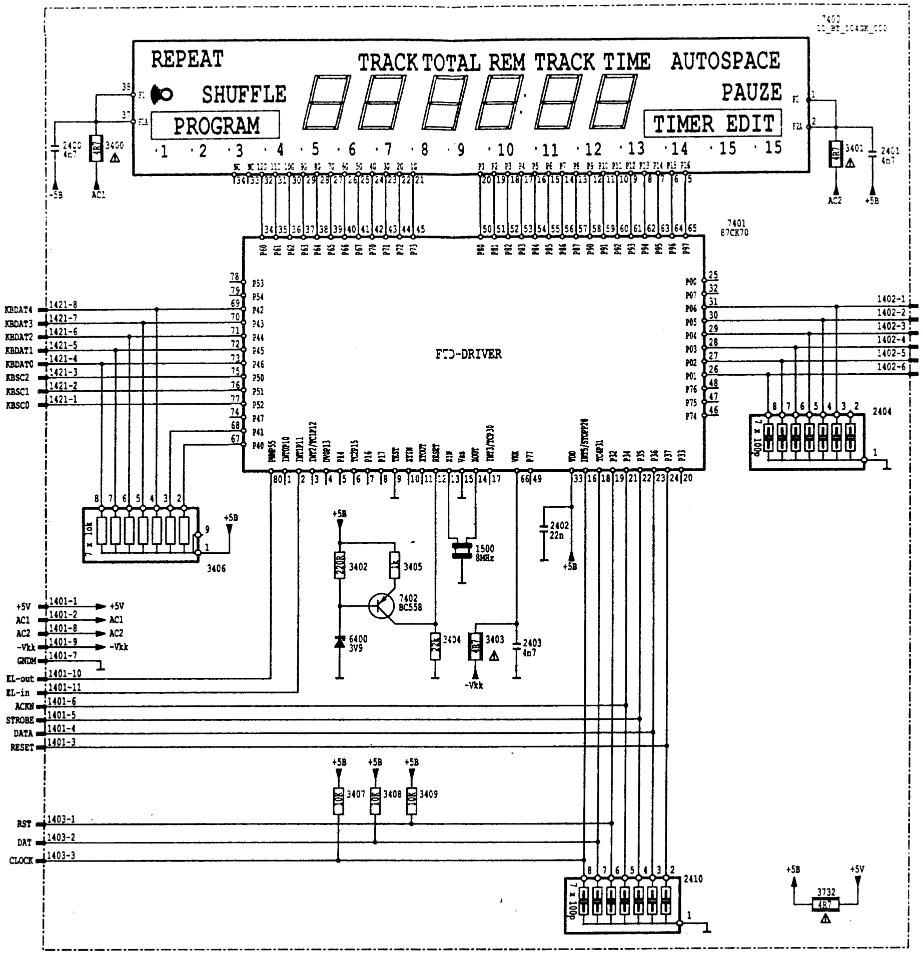
Demounting of pinch roller ⑭ ㉔



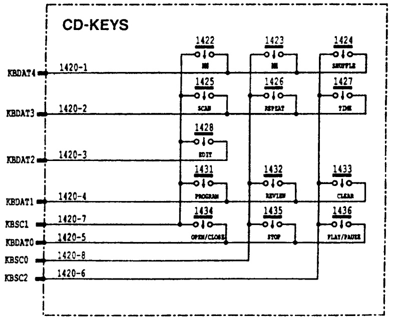
Demounting of Counter Bearing plate (51) (61)



CD-CONTROL

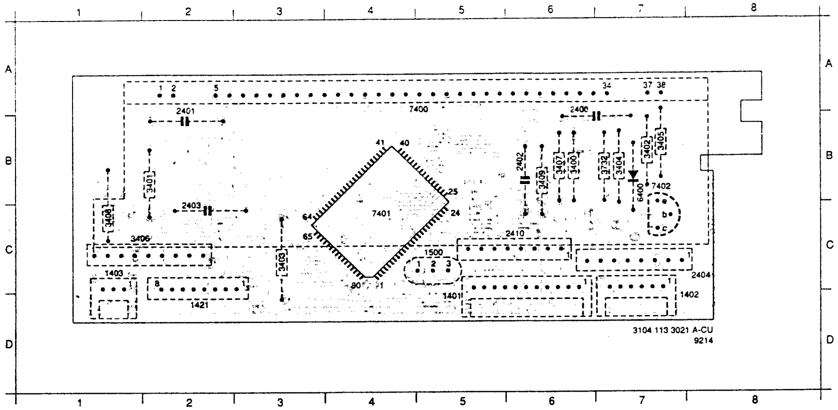

REPEAT
SHUFFLE
PROGRAM
TRACK TOTAL REM TRACK TIME
AUTOSPACE
PAUZE
TIMER EDIT
7400
7401
87CK70
FTD-DRIVER
2400
4n7
3400
2401
4n7
3401
AC1
AC2
-5B
+5B
KBDAT4
KBDAT3
KBDAT2
KBDAT1
KBDAT0
KBSC2
KBSC1
KBSC0
1421-8
1421-7
1421-6
1421-5
1421-4
1421-3
1421-2
1421-1
1402-1
1402-2
1402-3
1402-4
1402-5
1402-6
STRK
KO
KIKO
DATA
CLK
STRD
2404
7 x 100p
3406
7 x 10K
+5V
AC1
AC2
-Vkk
GNDM
EL-out
EL-in
ACKN
STROBE
DATA
RESET
1401-1
1401-2
1401-8
1401-9
1401-7
1401-10
1401-11
1401-6
1401-5
1401-4
1401-3
3402
220R
3405
7402
BC558
6400
3V9
3404
22K
3403
1500
8MHz
2402
22n
2403
4n7
-Vkk
3407
3408
3409
10K
RST
DAT
CLOCK
1403-1
1403-2
1403-3
2410
3732
4K7

CD-KEYS


KBDAT4
KBDAT3
KBDAT2
KBDAT1
KBSC1
KBDAT0
KBSC0
KBSC2
1420-1
1420-2
1420-3
1420-4
1420-7
1420-5
1420-8
1420-6
1422
1423
1424
SHUFFLE
1425
SCAN
1426
REPEAT
1427
TIME
1428
EDIT
1431
PROGRAM
1432
REVIEW
1433
CLEAR
1434
OPEN/CLOSE
1435
STOP
1436
PLAY/PAUSE

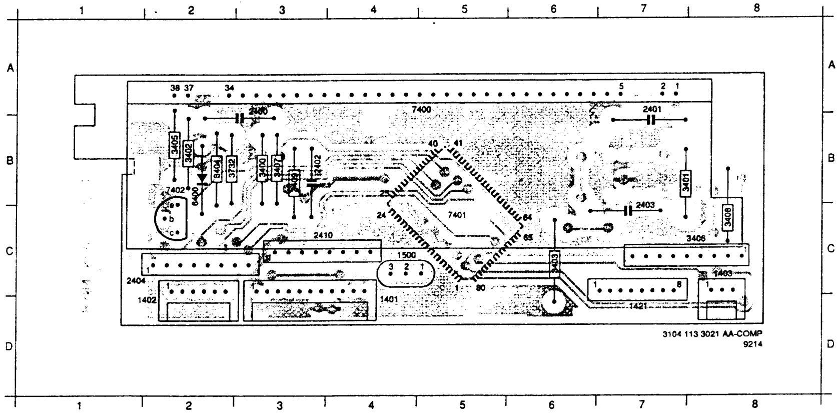
CD-CONTROL BOARD / COPPERSIDE VIEW

1401	D5	1421	D2	2401	A2	2404	C8	3401	B2	3404	B7	3407	B6	3732	B7	7401	C4
1402	D7	1500	C5	2402	B6	2410	C5	3402	B7	3405	B7	3408	C1	6400	C7	7402	B7
1403	C1	2400	A6	2403	C2	3400	B6	3403	C3	3406	C1	3409	B6	7400	A4		

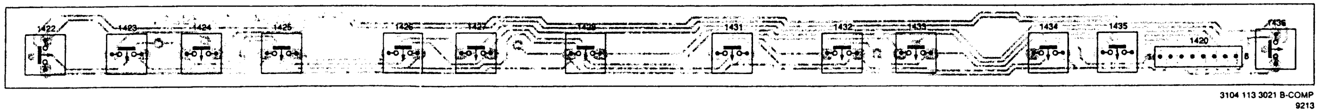

1
2
3
4
5
6
7
8
A
B
C
D
7400
2401
2400
7401
1500
2410
1401
1402
1403
1421
2403
2404
3406
3408
3401
3403
3402
3405
3404
3407
3409
3400
3732
2402
6400
7402
3104 113 3021 A-CU
9214

CD-CONTROL BOARD / COMPONENTSIDE VIEW

1401	D4	1421	D7	2401	A7	2404	C1	3401	B8	3404	B2	3407	B3	3732	B2	7401	C5
1402	D1	1500	C4	2402	B3	2410	C3	3402	B2	3405	B2	3408	C8	6400	C2	7402	B2
1403	C8	2400	A3	2403	C7	3400	B3	3403	C6	3406	C7	3409	B3	7400	A4		


1
2
3
4
5
6
7
8
A
B
C
D
7400
2400
2401
7401
7402
6400
1500
2410
2403
2404
1401
1402
1403
1421
3406
3408
3401
3403
3405
3402
3404
3732
3400
3407
3409
2402
3104 113 3021 AA-COMP
9214

CD-KEYS / COMPONENTSIDE VIEW


1422
1423
1424
1425
1426
1427
1428
1431
1432
1433
1434
1435
1436
1420
3104 113 3021 B-COMP
9213

3104 118 01091S-A
9212

REPAIR HINTS

- General

The CCD60 has no internal power supply. Therefore it´s necessary to connect the set to a FA060, FR070 or FA080.

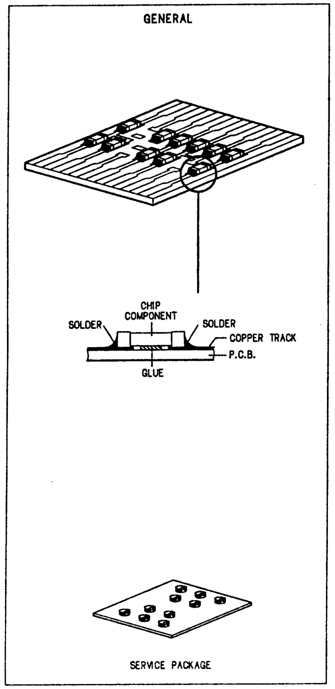
- Service solution for RIF

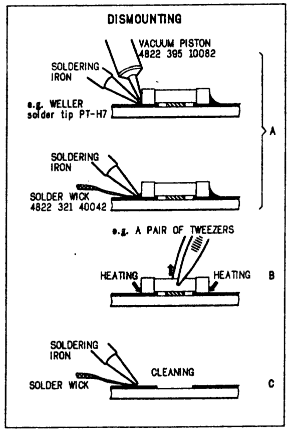
1. Disadjust frequency of erase oscillator with L5625 to about 87kHz.
2. Change C2631 & C2632 to 220pF (if necessary to 270pF).
3. Readjust bias (see page 23).

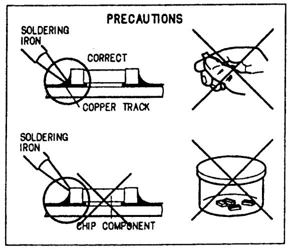
- CD-part

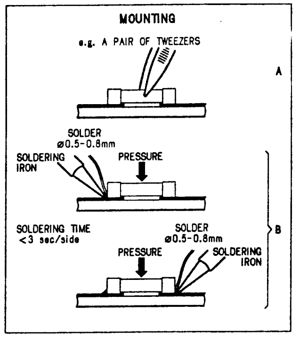
In this CD-module the servos are controlled by a digital servo processor (DISIC TDA1301T, pos.7000). The analogue focus- and track-error signals are digitalized by an internal A/D-converter. The further data processing is fully digital, adjustments like focus- and track-gain (as used in analogue electronics) are no longer necessary !

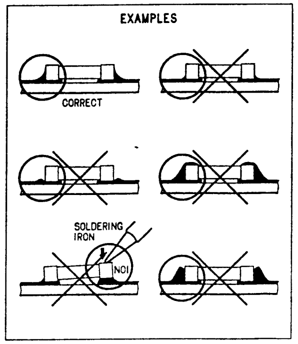
HANDLING CHIP COMPONENTS


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C


PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT


MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
ø0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
<3 sec/side
SOLDER
ø0.5-0.8mm
PRESSURE
SOLDERING IRON
B


EXAMPLES
CORRECT
SOLDERING IRON
NO!

(GB) WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

(F) ATTENTION

Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer le bracelet serti d´une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l´on utilise soient également à ce potentiel.

ESD

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING

Alle IC´s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

(F)
Les normes de sécurité exigent que l´appareil soit remis à l´état d´origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

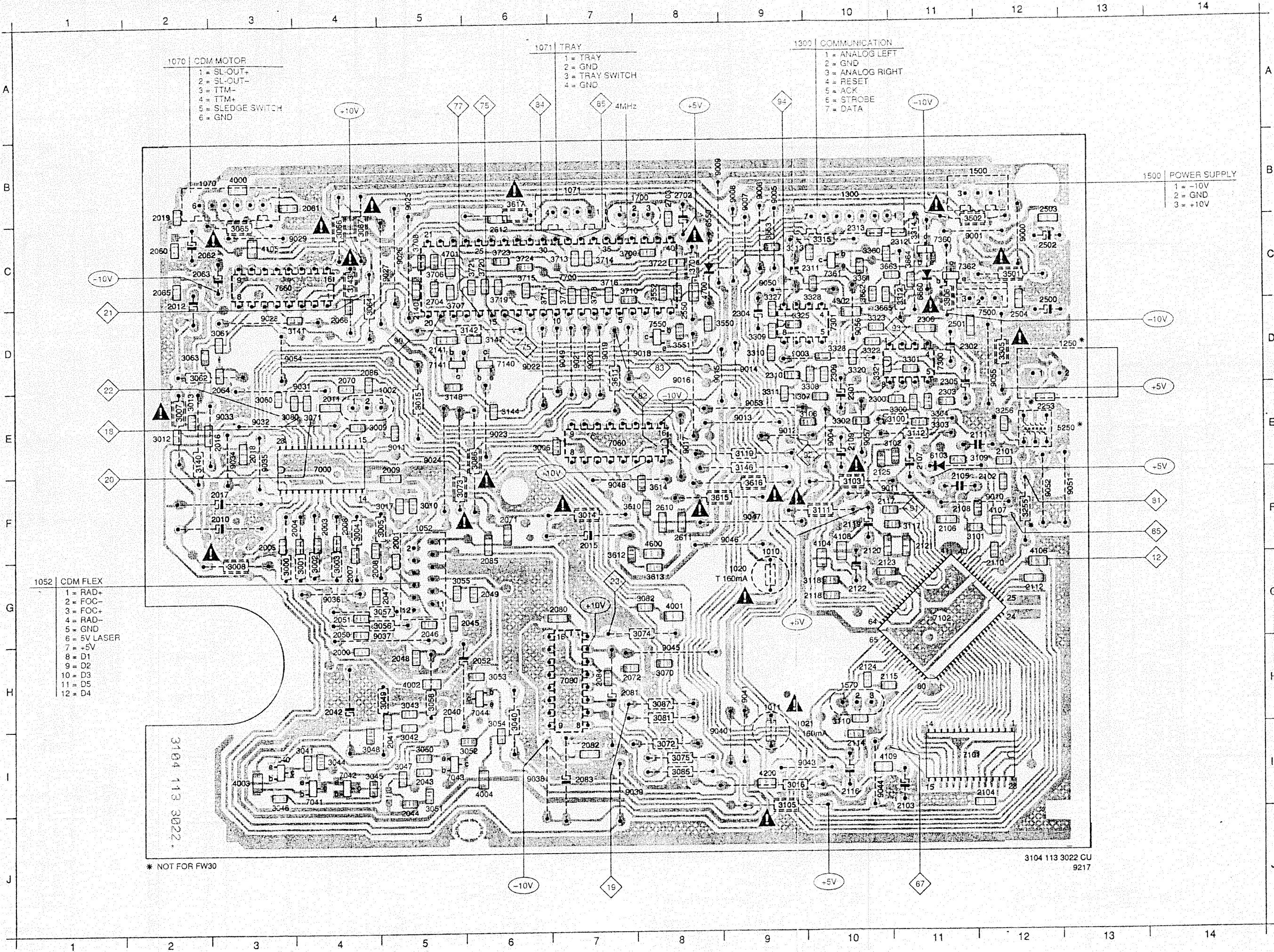
(S) Varning !
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(DK) Advarsel !
Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

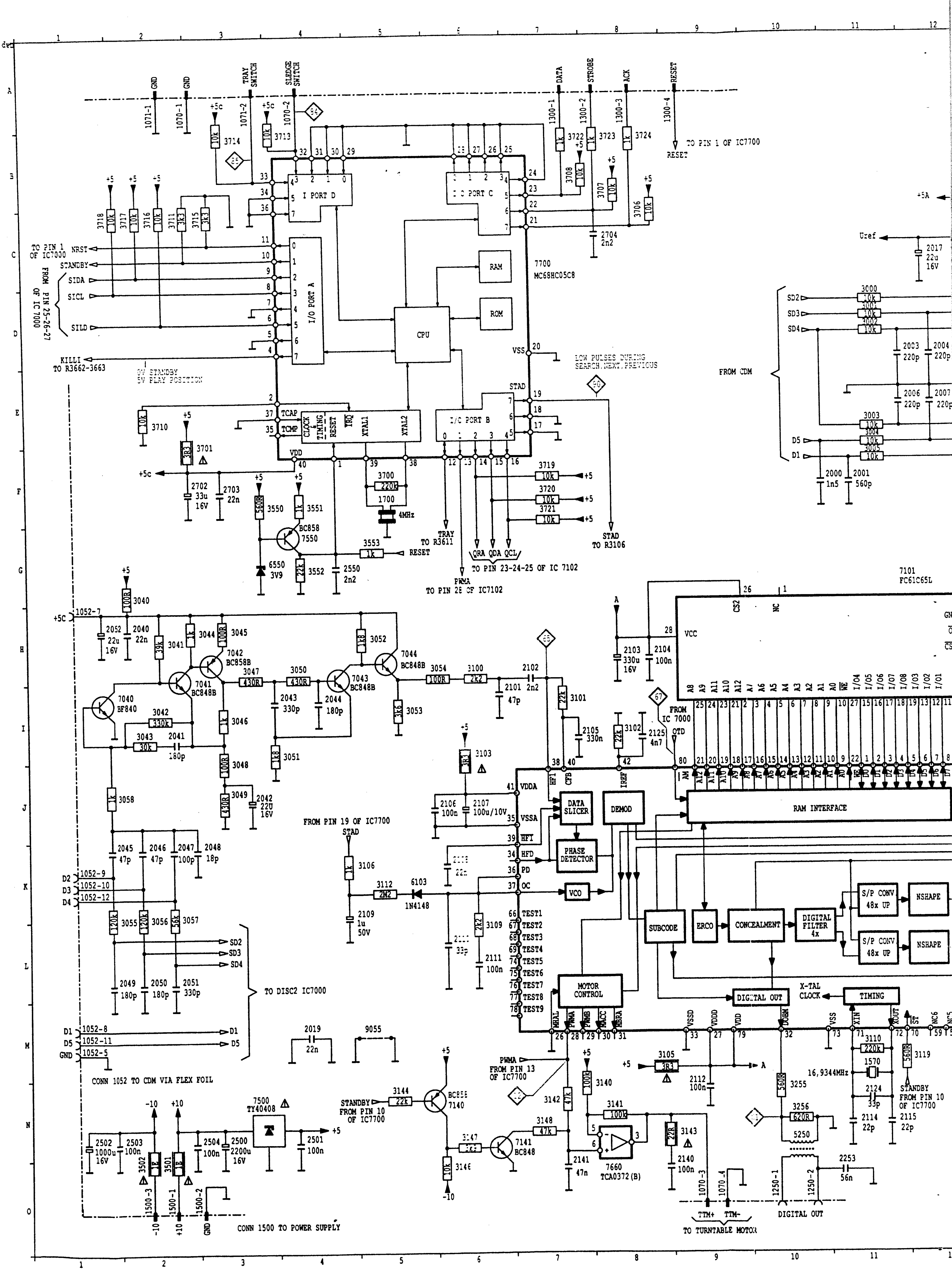
(SF) Varoitus !
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

(F)
"Pour votre sécurite, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

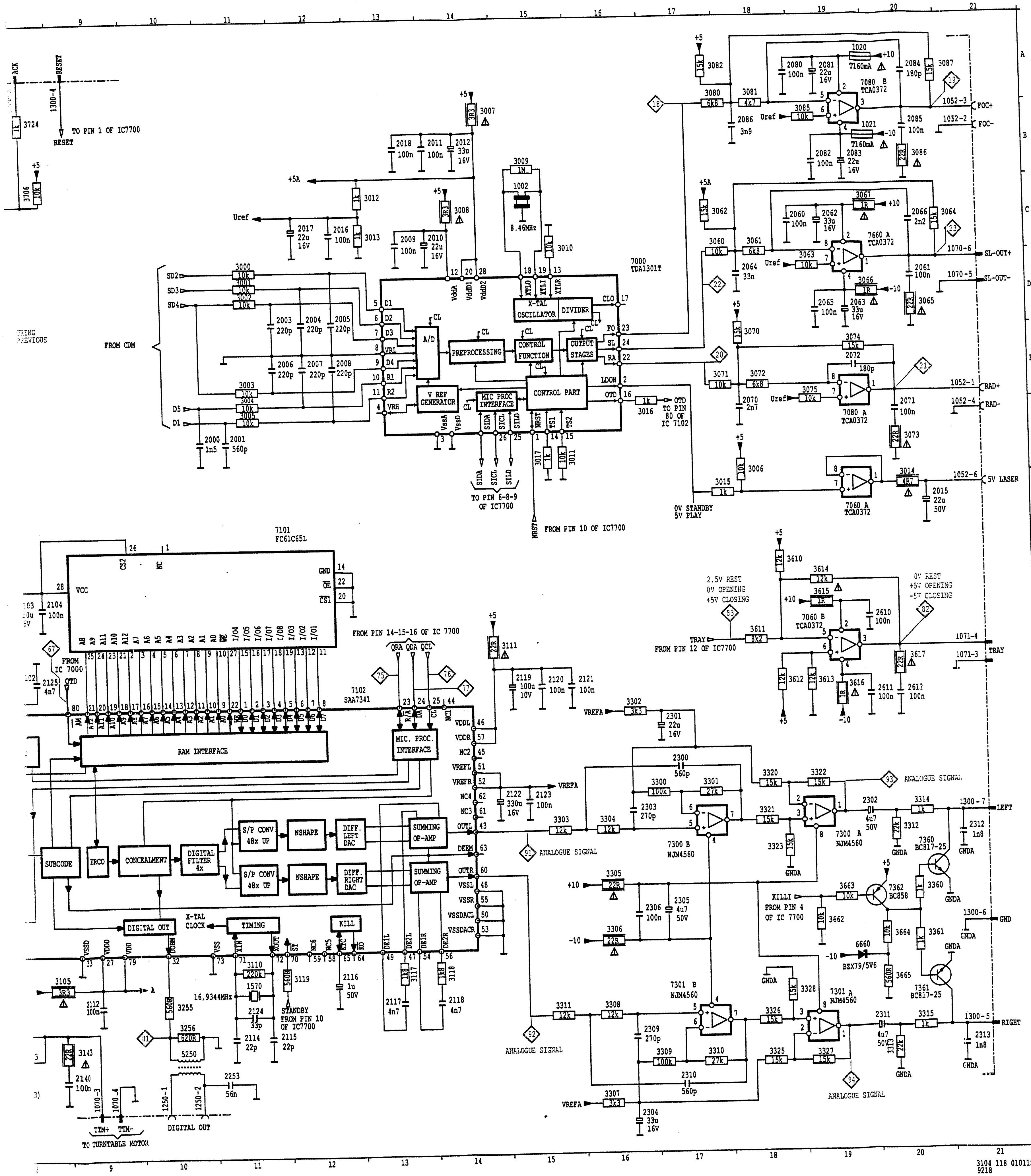
CD-BOARD / COPPERSIDE VIEW


1070 CDM MOTOR
1 = SL-OUT+
2 = SL-OUT-
3 = TTM-
4 = TTM+
5 = SLEDGE SWITCH
6 = GND
1071 TRAY
1 = TRAY
2 = GND
3 = TRAY SWITCH
4 = GND
1300 COMMUNICATION
1 = ANALOG LEFT
2 = GND
3 = ANALOG RIGHT
4 = RESET
5 = ACK
6 = STROBE
7 = DATA
1500 POWER SUPPLY
1 = -10V
2 = GND
3 = +10V
1052 CDM FLEX
1 = RAD+
2 = FOC-
3 = FOC+
4 = RAD-
5 = GND
6 = 5V LASER
7 = +5V
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
+10V
-10V
+5V
-5V
4MHz
T 160mA
3104 113 3022 CU
9217
* NOT FOR FW30

1002	E4	2253	E12	3105	I9	4004	I6	9052	F12
1010	F9	2300	E10	3106	E9	4104	F10	9053	E9
1011	H9	2301	E10	3109	E11	4105	C3	9054	D3
1020	G9	2302	D11	3110	H10	4106	G12	9055	E12
1021	I9	2303	E11	3111	F10	4107	F12	9056	D10
1052	F5	2304	D9	3112	E11	4108	F10	9057	E10
1070	B2	2305	E11	3117	F11	4109	I10		
1071	B7	2306	D11	3118	G9	4200	I9		
1250	D12	2309	D10	3119	E9	4302	D10		
1300	B10	2310	D9	3140	E2	4600	F8		
1500	B11	2311	C9	3141	D3	4700	C8		
1570	H10	2312	C11	3142	D5	4701	C5		
1700	B7	2313	C10	3143	C4	5250	E12		
2000	H4	2500	D12	3144	E6	6103	E11		
2001	F5	2501	D11	3146	E9	6550	C8		
2003	F4	2502	C12	3147	D6	6660	C11		
2004	F4	2503	B12	3148	E5	7000	E4		
2005	F3	2504	D12	3255	F12	7040	I3		
2007	G4	2550	D8	3256	E12	7041	I4		
2008	F4	2610	F8	3300	E10	7042	I4		
2008	G4	2611	F8	3301	D11	7043	I5		
2009	E5	2612	C6	3302	E10	7044	H6		
2010	F3	2702	B8	3303	E11	7060	E7		
2011	E4	2703	B8	3304	E11	7080	H7		
2012	C2	2704	C5	3305	D12	7101	I11		
2015	F7	3000	G3	3306	D11	7102	G11		
2016	E3	3001	G4	3307	E9	7140	D6		
2017	F2	3002	G4	3308	E9	7141	D5		
2018	E3	3003	G4	3309	D9	7300	D11		
2019	B2	3004	F4	3310	D9	7301	D10		
2040	H5	3005	F5	3311	E9	7360	C11		
2041	I5	3006	E6	3312	D11	7361	C10		
2042	H4	3007	E2	3313	C9	7362	C11		
2043	I5	3008	G3	3314	C11	7500	D12		
2044	J5	3009	E4	3315	C10	7550	D8		
2045	G5	3010	F5	3320	D10	7660	C3		
2046	G5	3011	E5	3321	D10	7700	C7		
2047	G5	3012	E2	3322	D10	9000	C12		
2048	H5	3013	E2	3323	D10	9001	C11		
2049	G6	3014	F7	3325	D9	9003	D9		
2050	G4	3015	E5	3326	D10	9004	E10		
2051	G4	3016	I9	3327	C9	9005	B9		
2052	H6	3017	F4	3328	C9	9006	B9		
2060	C2	3040	I6	3360	C10	9007	B9		
2061	B4	3041	I3	3361	C10	9008	B9		
2062	C2	3042	I5	3501	C12	9009	B9		
2063	C2	3043	H5	3502	C11	9010	F12		
2064	D3	3044	I4	3550	D8	9011	F10		
2065	C2	3045	I4	3551	D8	9012	E9		
2066	D4	3046	I3	3552	C8	9013	E9		
2070	D4	3047	I5	3553	C9	9014	D9		
2071	F6	3048	I4	3610	F7	9015	D8		
2072	H7	3049	H5	3611	D7	9016	D8		
2080	G6	3050	I5	3612	F7	9017	E8		
2081	H7	3051	I5	3613	G8	9018	D7		
2082	I7	3052	I5	3614	F8	9019	D7		
2083	I7	3053	H6	3615	F8	9020	D7		
2084	H7	3054	H6	3616	F9	9021	D7		
2085	G6	3055	G5	3617	B6	9022	D6		
2086	D4	3056	G4	3662	D10	9023	E6		
2101	E12	3057	G4	3663	C10	9024	E5		
2102	F12	3058	H5	3664	C11	9025	B5		
2103	J11	3060	E3	3665	D10	9026	C5		
2104	I11	3061	D3	3700	C7	9027	C5		
2105	F11	3062	D2	3701	C8	9028	D3		
2106	F11	3063	D2	3706	C5	9029	C3		
2107	F11	3064	D4	3707	D5	9031	D3		
2108	F11	3065	C3	3708	C5	9032	E3		
2109	E10	3066	C4	3710	C7	9033	E3		
2110	G12	3067	C4	3711	C6	9034	E3		
2111	E11	3070	H8	3713	C7	9035	E3		
2112	G12	3071	E4	3714	C7	9036	G4		
2114	I10	3072	I8	3715	C6	9037	G4		
2115	H10	3073	F5	3716	C7	9038	I6		
2116	I10	3074	G7	3717	C7	9039	I7		
2117	F10	3075	I8	3718	C7	9040	I8		
2118	G9	3080	E3	3719	C6	9041	H9		
2119	F10	3081	H8	3720	C6	9043	I9		
2120	F10	3082	G7	3721	C6	9044	I10		
2121	F11	3085	I8	3722	C8	9045	H8		
2122	G10	3086	E6	3723	C6	9046	F8		
2123	G10	3087	H8	3724	C6	9047	F9		
2124	H10	3100	E10	4000	B3	9048	F7		
2125	F10	3101	F11	4001	G8	9049	D7		
2140	D5	3102	E10	4002	H5	9050	C9		
2141	D5	3103	F10	4003	I3	9051	F13		

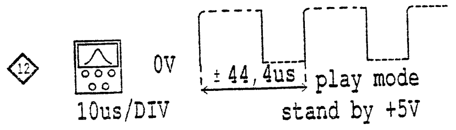

1071-1 GND
1070-1 GND
1071-2 TRAY SWITCH
1070-2 SLEDGE SWITCH
1300-1 DATA
1300-2 STROBE
1300-3 ACK
1300-4 RESET
TO PIN 1 OF IC7700 RESET
3714 10k
3713 10k
+5c
3722 1k
3723 1k
3724 1k
3708 10k
3707 10k
3706 10k
2704 2n2
I PORT D
I/O PORT C
I/O PORT A
I/O PORT B
CPU
RAM
ROM
7700 MC68HC05C8
3718 10k
3717 10k
3716 10k
3711 3k3
3715 3k3
TO PIN 1 OF IC7000 NRST
STANDBY
SIDA
SICL
SILD
FROM PIN 25-26-27 OF IC 7000
KILLI TO R3662-3663
0V STANDBY
5V PLAY POSITION
VSS
LOW PULSES DURING SEARCH,NEXT,PREVIOUS
STAD
TCAP
TCMP
CLOCK TIMING
RESET
IRQ
XTAL1
XTAL2
VDD
3710 10k
3701 3R3
+5c
2702 33u 16V
2703 22n
3550 560R
3551 1k
BC858 7550
6550 3V9
3552 22k
2550 2n2
3553 1k
RESET
3700 220k
1700 4MHz
TRAY TO R3611
PWMA TO PIN 28 OF IC7102
QRA QDA QCL
TO PIN 23-24-25 OF IC 7102
3719 10k
3720 10k
3721 10k
STAD TO R3106
+5A
Uref
2017 22u 16V
SD2
SD3
SD4
3000 10k
3001 10k
3002 10k
2003 220p
2004 220p
2006 220p
2007 220p
FROM CDM
3003 10k
3004 10k
3005 10k
D5
D1
2000 1n5
2001 560p
7101 FC61C65L
CS2
NC
VCC
GN
+5C
1052-7
3040 100R
2052 22u 16V
2040 22n
3041 39k
1k
3044 100R
3045
7042 BC858B
7040 BF840
7041 BC848B
3047 430R
3050 430R
7043 BC848B
3052 1k8
7044 BC848B
3054 100R
3100 2k2
2102 2n2
2101 47p
3042 330k
3043 30k
2041 180p
3046 1k
2043 330p
2044 180p
3053 3k6
3101 22k
3048 100R
3051 1k8
3049 430R
2042 22U 16V
3058 1k
2045 47p
2046 47p
2047 100p
2048 18p
D2 1052-9
D3 1052-10
D4 1052-12
3055 120k
3056 120k
3057 56k
2049 180p
2050 180p
2051 330p
TO DISC2 IC7000
D1 1052-8
D5 1052-11
GND 1052-5
CONN 1052 TO CDM VIA FLEX FOIL
2019 22n
9055
2103 330u 16V
2104 100n
FROM IC 7000 OTD
3102 22k
2125 4n7
2105 330n
3103 1R1
2106 100n
2107 100u/10V
VDDA
VSSA
HFI
HFD
PD
OC
HF1
CFB
IREF
DATA SLICER
DEMOD
PHASE DETECTOR
VCO
RAM INTERFACE
FROM PIN 19 OF IC7700 STAD
3106 1k
3112 2M2
6103 1N4148
2109 1u 50V
3109 2k2
2111 100n
TEST1
TEST2
TEST3
TEST4
TEST5
TEST6
TEST7
TEST8
TEST9
MOTOR CONTROL
SUBCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIGITAL OUT
X-TAL CLOCK
TIMING
MWAL
PWMA
MWMB
MACC
MBRA
VSSD
VDDD
VDD
DOBM
VSS
XIN
XOUT
ST
NC6
3110 220k
3119 560R
1570 16,9344MHz
2124 33p
2114 22p
2115 22p
STANDBY FROM PIN 10 OF IC7700
3105 3R3
2112 100n
3255 560R
3256 620R
5250
2253 56n
1250-1
1250-2
DIGITAL OUT
PWMA FROM PIN 13 OF IC7700
3140 100k
3141 100k
3142 47k
3143 22R
2140 100n
3148 47k
7141 BC848
7660 TCA0372(B)
2141 47n
1070-3
1070-4
TTM+ TTM-
TO TURNTABLE MOTOR
STANDBY FROM PIN 10 OF IC7700
3144 22k
BC858 7140
3147 1k
3146 10k
-10
+10
7500 TY40408
2502 1000u 16V
2503 100n
2504 100n
2500 2200u 16V
2501 100n
3502 1E
3501 1E
1500-3
1500-1
1500-2
GND
CONN 1500 TO POWER SUPPLY

3104 118 01011R-A
9218

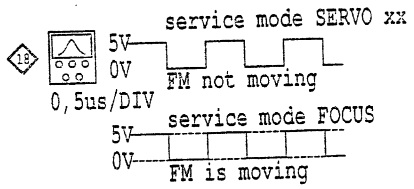

7000 TDA1301T
X-TAL OSCILLATOR
DIVIDER
A/D
PREPROCESSING
CONTROL FUNCTION
OUTPUT STAGES
CONTROL PART
V REF GENERATOR
MIC PROC INTERFACE
8.46MHz
FROM CDM
SD2
SD3
SD4
D5
D1
Uref
+5A
TO PIN 1 OF IC7700
RESET
ACK
TO PIN 80 OF IC 7102
TO PIN 6-8-9 OF IC7700
FROM PIN 10 OF IC7700
0V STANDBY 5V PLAY
FOC+
FOC-
SL-OUT+
SL-OUT-
RAD+
RAD-
5V LASER
T160mA
7080 B TCA0372
7080 A TCA0372
7660 A TCA0372
7660 B TCA0372
7060 A TCA0372
7060 B TCA0372
2,5V REST 0V OPENING +5V CLOSING
0V REST +5V OPENING -5V CLOSING
TRAY FROM PIN 12 OF IC7700
TRAY
7101 FC61C65L
7102 SAA7341
FROM PIN 14-15-16 OF IC 7700
QRA QDA QCL
FROM IC 7000
RAM INTERFACE
MIC. PROC. INTERFACE
SUBCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIFF. LEFT DAC
DIFF. RIGHT DAC
SUMMING OP-AMP
DIGITAL OUT
X-TAL CLOCK
TIMING
KILL
16,9344MHz
STANDBY FROM PIN 10 OF IC7700
VREFA
ANALOGUE SIGNAL
7300 B NJM4560
7300 A NJM4560
7301 B NJM4560
7301 A NJM4560
7360 BC817-25
7361 BC817-25
7362 BC858
KILL FROM PIN 4 OF IC 7700
BZX79/5V6
LEFT
RIGHT
GND
GNDA
TTM+ TTM-
TO TURNTABLE MOTOR
DIGITAL OUT
A B C D E F G H I J K L M N O
9 10 11 12 13 14 15 16 17 18 19 20 21
12 18 19 20 21 22 23 65 67 75 76 77 81 82 83 91 92 93 94

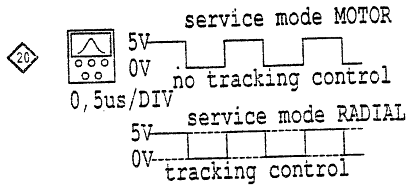
3104 118 01011S-A
9218

1002	C15
1020	A20
1021	B20
1052	K 1
1052	K 1
1052	M 1
1052	M 1
1052	K 1
1052	M 1
1052	H 1
1052	B21
1052	G21
1052	F21
1052	E21
1052	B21
1070	O 9
1070	O 9
1070	A 4
1070	A 2
1070	D21
1070	D21
1071	A 3
1071	A 2
1071	I21
1071	I21
1250	O10
1250	O10
1300	A 9
1300	A 8
1300	A 8
1300	A 7
1300	K21
1300	N21
1300	M21
1500	O 2
1500	O 2
1500	O 2
1570	M11
1700	F 5
2000	F11
2001	F11
2003	D12
2004	D12
2005	D12
2006	E12
2007	E12
2008	E12
2009	C13
2010	C14
2011	B14
2012	B14
2015	G20
2016	C12
2017	C12
2018	B13
2019	M 4
2040	H 2
2041	I 2
2042	J 3
2043	I 4
2044	I 4
2045	K 1
2046	K 2
2047	K 2
2048	K 3
2049	L 1
2050	L 2
2051	L 2
2052	H 1
2060	C18
2061	D20
2062	C19
2063	D19
2064	D18
2065	D19
2066	C20
2070	F18
2071	F20
2072	E19
2080	A19
2081	A19
2082	B19
2083	B19
2084	A20
2085	B20
2086	B18
2101	I 6
2102	H 7
2103	H 8
2104	H 8
2105	I 7
2106	J 6
2107	J 6
2108	K 6
2109	K 5
2110	L 6
2111	L 6
2112	N 9
2114	N11
2115	N11
2116	M12
2117	N13
2118	N14
2119	I15
2120	I15
2121	I15
2122	K14
2123	K15
2124	N11
2125	I 8
2140	O 9
2141	O 7
2253	O11
2300	J17
2301	J17
2302	K19
2303	K16
2304	O16
2305	L17
2306	L16
2309	N16
2310	O17
2311	N19
2312	K21
2313	N21
2500	N 3
2501	N 4
2502	N 1
2503	N 2
2504	N 3
2550	G 4
2610	H20
2611	I20
2612	I20
2702	F 2
2703	F 3
2704	C 8
3000	D11
3001	D11
3002	D11
3003	E11
3004	E11
3005	F11
3006	F18
3007	B14
3008	C14
3009	B15
3010	C15
3011	F16
3012	C13
3013	C13
3014	G20
3015	G18
3016	F16
3017	F15
3040	G 2
3041	H 2
3042	I 2
3043	I 2
3044	H 3
3045	H 3
3046	I 3
3047	H 3
3048	J 3
3049	J 3
3050	H 4
3051	I 4
3052	H 5
3053	I 5
3054	H 6
3055	L 2
3056	K 2
3057	K 2
3058	J 2
3060	C18
3061	C18
3062	C17
3063	D19
3064	C21
3065	D20
3066	D19
3067	C19
3070	E18
3071	E18
3072	E18
3073	F20
3074	E19
3075	E19
3080	A18
3081	A18
3082	A17
3085	B19
3086	B20
3087	A21
3100	H 6
3101	I 7
3102	I 8
3103	I 6
3105	M 8
3106	K 5
3109	L 6
3110	M11
3111	I14
3112	K 5
3117	M13
3118	M14
3119	M12
3140	N 8
3141	N 8
3142	N 7
3143	N 9
3144	N 5
3146	O 6
3147	N 6
3148	N 7
3255	N10
3256	N10
3300	K16
3301	K17
3302	J16
3303	K15
3304	K16
3305	L16
3306	M16
3307	O16
3308	N16
3309	N16
3310	N17
3311	N15
3312	K20
3313	N20
3314	K20
3315	N20
3320	K18
3321	K18
3322	K19
3323	L18
3325	N18
3326	N18
3327	N19
3328	M18
3360	L20
3361	M20
3501	O 2
3502	O 2
3550	F 3
3551	F 4
3552	G 4
3553	G 5
3610	H18
3611	I18
3612	I18
3613	I19
3614	H19
3615	H19
3616	I19
3617	I20
3662	M19
3663	L19
3664	M20
3665	M20
3700	F 5
3701	F 3
3706	C 8
3707	B 8
3708	B 7
3710	E 2
3711	C 2
3713	B 4
3714	B 3
3715	C 3
3716	C 2
3717	C 2
3718	C 1
3719	F 7
3720	F 7
3721	F 7
3722	B 7
3723	B 8
3724	B 8
5250	N10
6103	K 5
6550	G 4
6660	M19
7000	D16
7040	I 2
7041	I 2
7042	H 3
7043	H 4
7044	H 5
7060	I19
7060	G19
7080	F19
7080	A20
7101	G11
7102	I12
7140	N 6
7141	N 6
7300	L17
7300	K19
7301	M17
7301	N19
7360	L20
7361	M20
7362	L20
7500	N 3
7550	G 4
7660	O 8
7660	C20
7700	C 7
9055	M 5

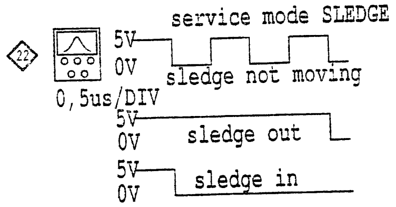


19 ACTIVITY DURING PLAY

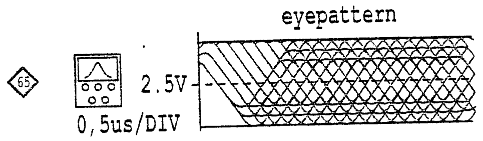




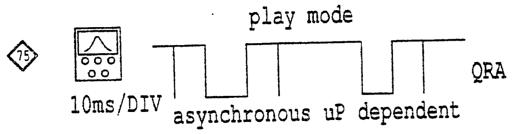
21 ACTIVITY DURING PLAY

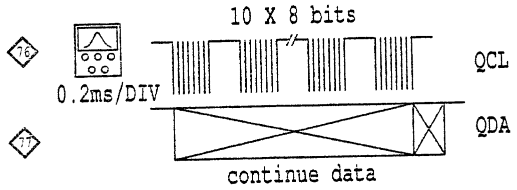


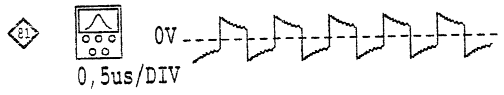
23 SERVICE POSITION SLEDGE
SL-OUT -2,6V
SL-IN +2,6V



67 SERVICE POSITION SLEDGE,FOCUS,MOTOR: 0V
SERVICE POSITION RADIAL: 5V



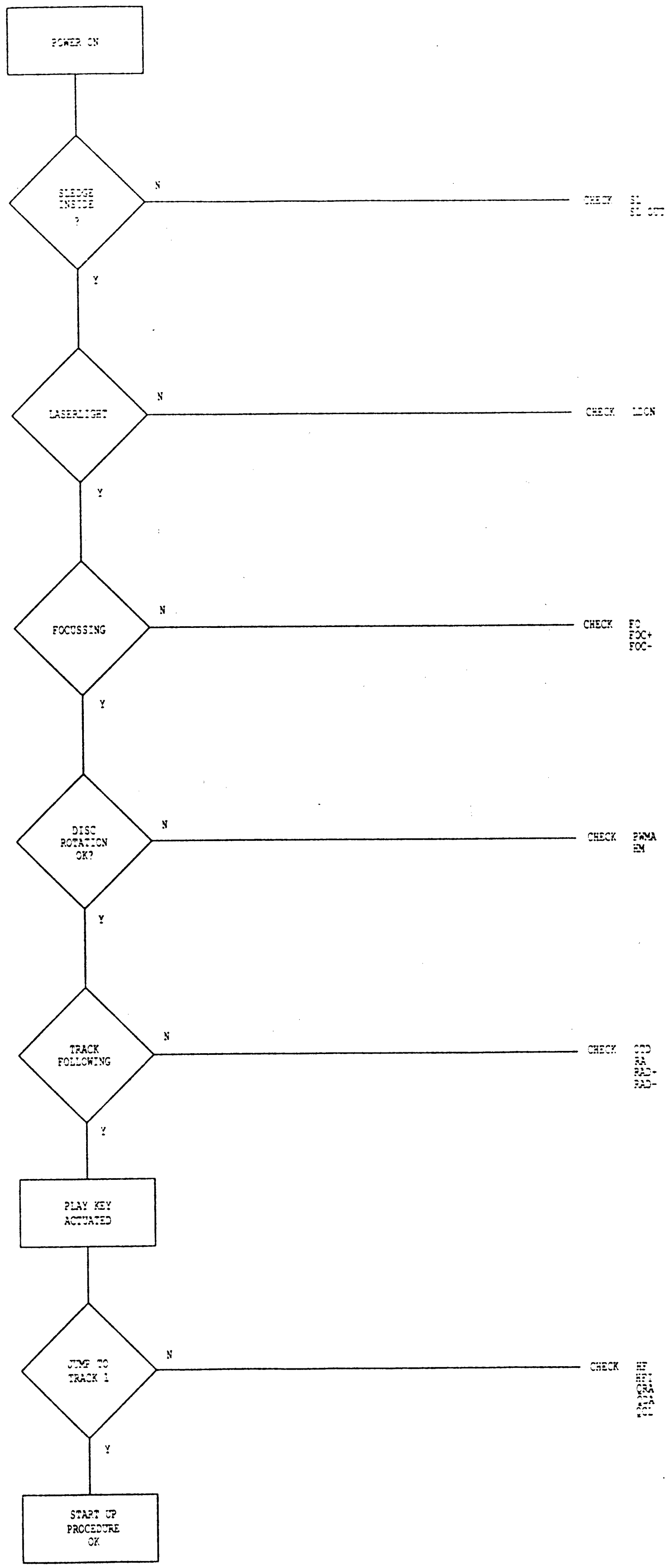




84 SERVICE POSITION SLEDGE
0V REST POSITION
+5V WHEN SLEDGE IS MOVING

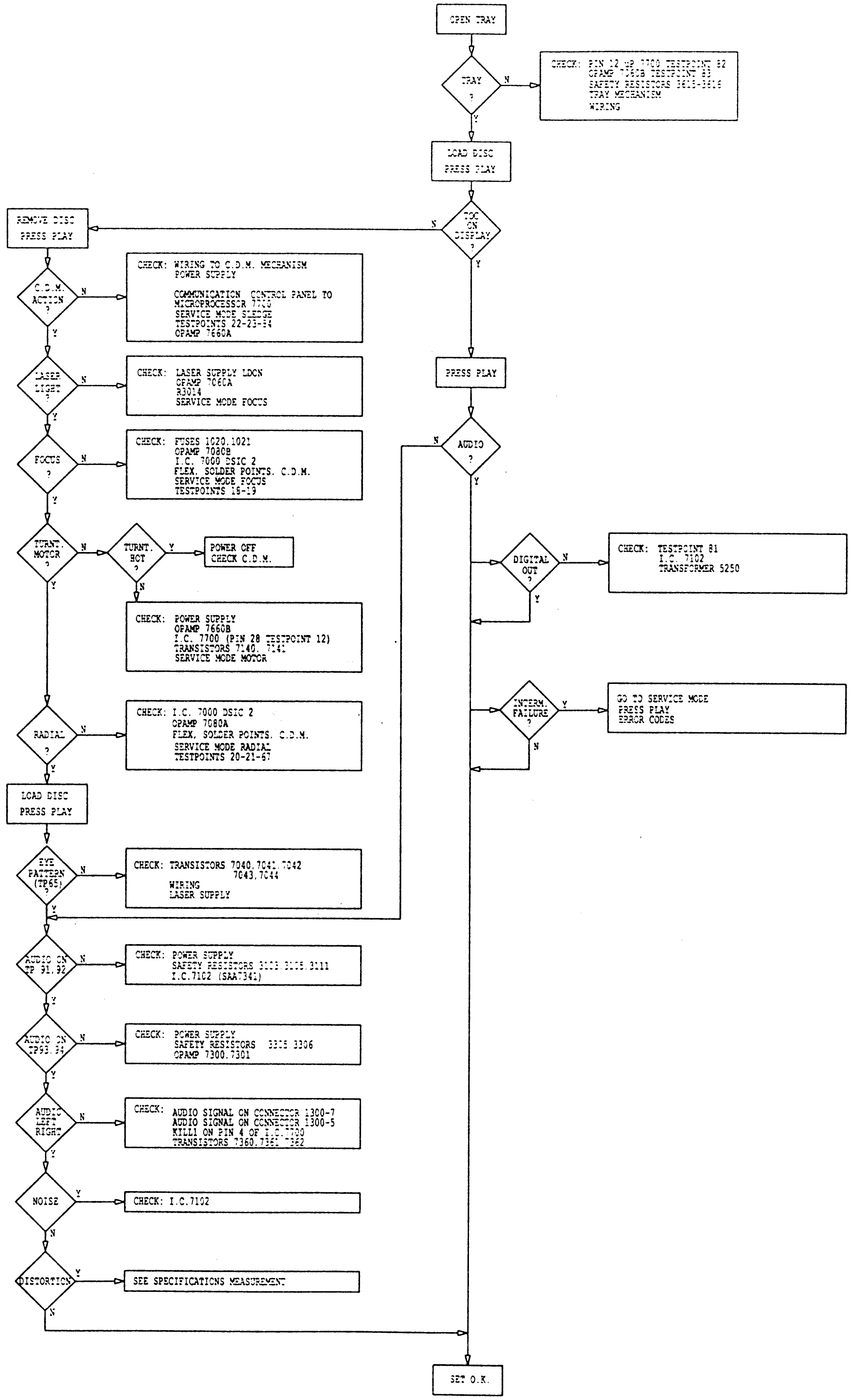
85 +5V REST POSITION OF TRAY
0V WHEN OPENING OR CLOSING

START-UP PROCEDURE


POWER ON
SLEDGE INSIDE ?
N
CHECK SL SL OUT
Y
LASERLIGHT
N
CHECK LDON
Y
FOCUSSING
N
CHECK FO FOC+ FOC-
Y
DISC ROTATION OK?
N
CHECK PWMA EM
Y
TRACK FOLLOWING
N
CHECK CTD RA RAD+ RAD-
Y
PLAY KEY ACTUATED
JUMP TO TRACK 1
N
CHECK HF HFI CRA
Y
START UP PROCEDURE OK

HAS1027
9214

FAULTFINDING TREE


OPEN TRAY
TRAY ?
N
CHECK: PIN 12 uP 7700 TESTPOINT 82
OPAMP 7060B TESTPOINT 83
SAFETY RESISTORS 3615-3616
TRAY MECHANISM
WIRING
Y
LOAD DISC PRESS PLAY
TOC ON DISPLAY ?
N
REMOVE DISC PRESS PLAY
C.D.M. ACTION ?
N
CHECK: WIRING TO C.D.M. MECHANISM
POWER SUPPLY
COMMUNICATION CONTROL PANEL TO MICROPROCESSOR 7700
SERVICE MODE SLEDGE
TESTPOINTS 22-23-84
OPAMP 7660A
Y
LASER LIGHT ?
N
CHECK: LASER SUPPLY LDON
OPAMP 7060A
R3014
SERVICE MODE FOCUS
Y
FOCUS ?
N
CHECK: FUSES 1020,1021
OPAMP 7080B
I.C. 7000 DSIC 2
FLEX. SOLDER POINTS. C.D.M.
SERVICE MODE FOCUS
TESTPOINTS 18-19
Y
TURNT. MOTOR ?
N
TURNT. HOT ?
Y
POWER OFF CHECK C.D.M.
N
CHECK: POWER SUPPLY
OPAMP 7660B
I.C. 7700 (PIN 28 TESTPOINT 12)
TRANSISTORS 7140, 7141
SERVICE MODE MOTOR
Y
RADIAL ?
N
CHECK: I.C. 7000 DSIC 2
OPAMP 7080A
FLEX. SOLDER POINTS. C.D.M.
SERVICE MODE RADIAL
TESTPOINTS 20-21-67
Y
LOAD DISC PRESS PLAY
EYE PATTERN (TP65) ?
N
CHECK: TRANSISTORS 7040,7041,7042
7043,7044
WIRING
LASER SUPPLY
Y
AUDIO ON TP 91,92
N
CHECK: POWER SUPPLY
SAFETY RESISTORS 3103,3105,3111
I.C.7102 (SAA7341)
Y
AUDIO ON TP93,94
N
CHECK: POWER SUPPLY
SAFETY RESISTORS 3305,3306
OPAMP 7300,7301
Y
AUDIO LEFT RIGHT
N
CHECK: AUDIO SIGNAL ON CONNECTOR 1300-7
AUDIO SIGNAL ON CONNECTOR 1300-5
KILL1 ON PIN 4 OF I.C.7700
TRANSISTORS 7360,7361,7362
Y
NOISE
Y
CHECK: I.C.7102
N
DISTORTION
Y
SEE SPECIFICATIONS MEASUREMENT
N
Y
PRESS PLAY
AUDIO ?
N
Y
DIGITAL OUT ?
N
CHECK: TESTPOINT 81
I.C. 7102
TRANSFORMER 5250
Y
INTERM. FAILURE ?
Y
GO TO SERVICE MODE
PRESS PLAY
ERROR CODES
N
SET O.K.

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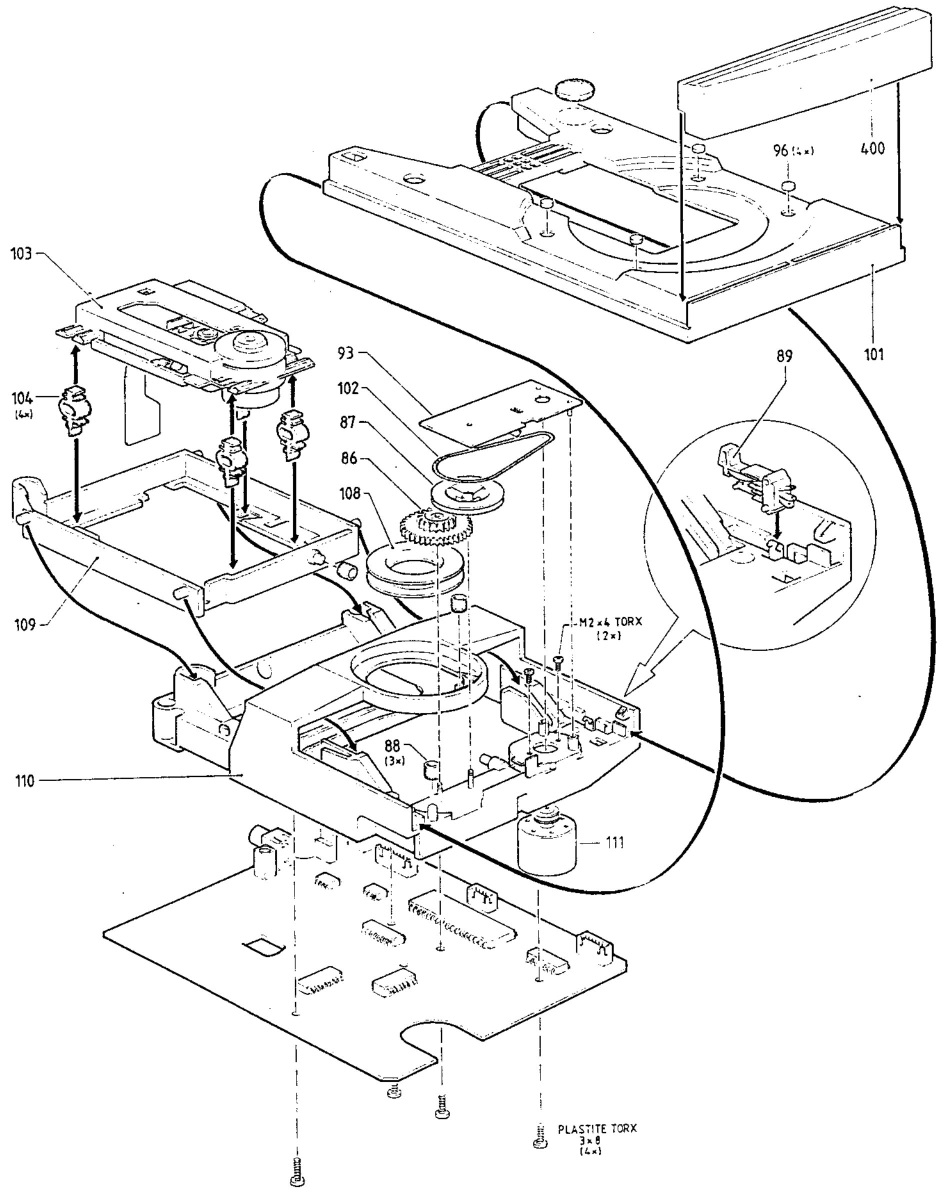
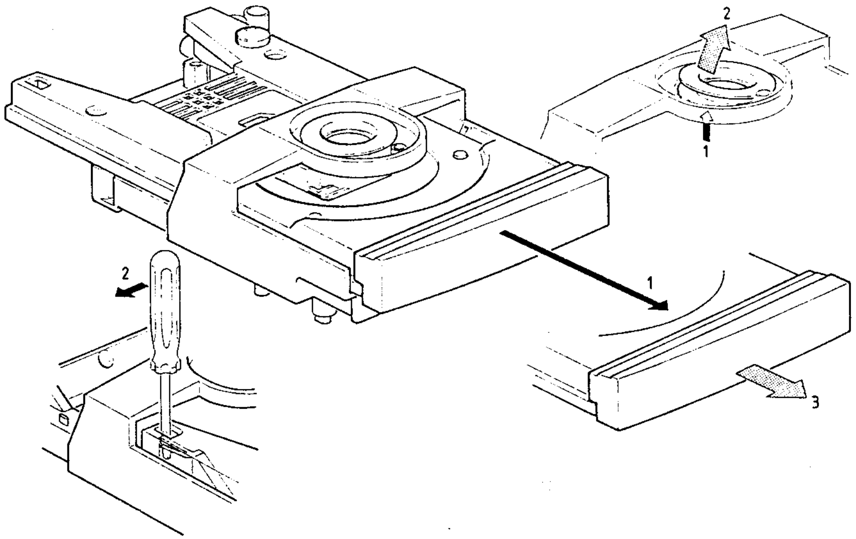
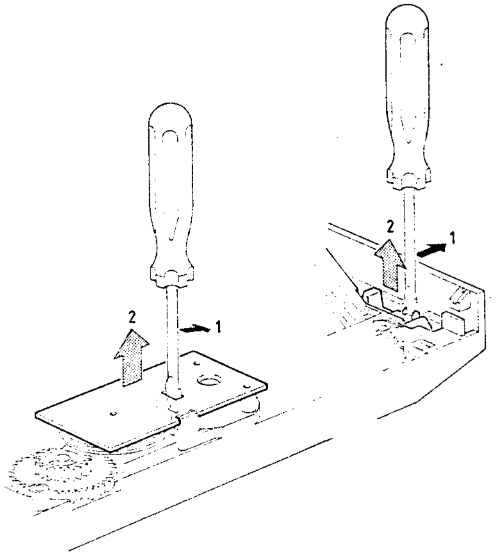
ABBREVIATIONS

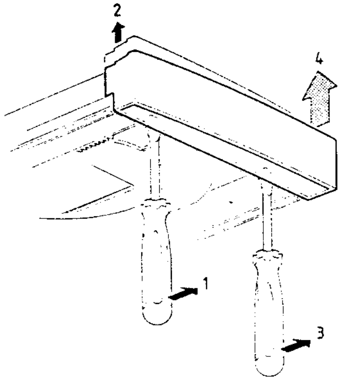
A0-A12	: Address outputs to external RAM
AM*	: Additional mute
CFB	: Data slicer feedback output to capacitor
CL	: Microprocessor interface clock input
CLO	: Clock output
D0-D7	: Data inputs/outputs to external RAM
D1-D4	: Central diode signal input
DA	: Microprocessor interface data input/output line
DE1L	: Pin 1 for external de-emphasis capacitor and resistor
DE1R	: Pin 1 for external de-emphasis capacitor and resistor
DE2L	: Pin 2 for external de-emphasis capacitor and resistor
DE2R	: Pin 2 for external de-emphasis capacitor and resistor
DEEM	: Output for external de-emphasis switches
DOBM	: Digital audio output
FO	: Focus actuator output
HFD	: High frequency detector
HFI*	: Inverting data slicer input
HFI	: Non-inverting data slicer input
HM	: Motor control signal
IREF	: Current reference output
KO*	: Kill out
KTC	: Kill time capacitor connection
LDON	: Laser drive on
MACC	: Motor accelerate signal
MBRA	: Motor brake signal
MHAL	: Hall effect detector for motor
NRST	: Reset input
OC	: VCO control
OTD	: Off track detector
OUTL	: Left channel output
OUTR	: Right channel output
PD	: Phase detector
PWMA	: Pulse width modulated motor control acceleration
PWMB	: Pulse width modulated motor brake signal
R/A	: Request/acknowledge
SD1-5	: Photodiode signals
SICL	: Serial interface clock
SIDA	: Serial interface data
SILD	: Serial interface load
SL	: Sledge output
ST*	: Standby mode
TS1-TS2	: Test input
VddA	: Power supply analog part
VddD	: Power supply digital part
VRH	: Reference input for A/D converter
VRL	: Reference input for A/D converter
VssA	: Ground analog part
VssD	: Ground digital part
WE	: Write enable
XIN	: Crystal oscillator input
XOUT	: Output to clock crystal
XTLI	: Oscillator input
XTLO	: Oscillator output
XTLR	: Oscillator reference

* log. 0-active !







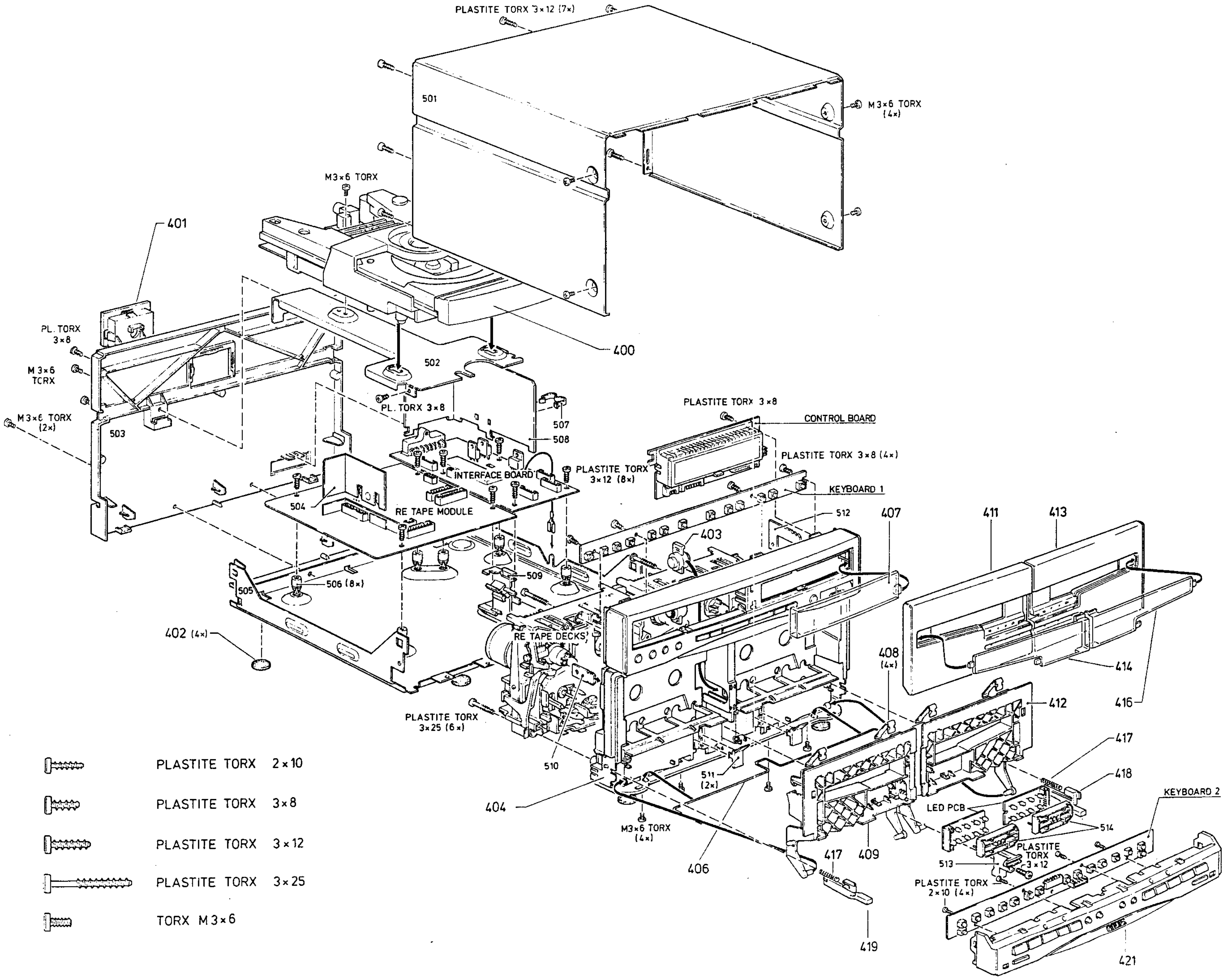


MECHANICAL PARTSLIST CD-BRICK

86	4822 528 81464	DRIVE PINION
87	4822 528 81465	PULLEY
88	4822 325 60379	DAMPING GROMMET
89	4822 276 13222	SWITCH
93	4822 444 60816	COVER PLATE
96	4822 462 41902	ORNAMENTAL TULE
101	4822 444 50679	SLIDE
102	4822 358 31168	BELT
103	4822 691 30278	CDM12 DISC DRIVE
104	4822 325 50215	SUSPENSION
108	4822 402 61412	CLAMPER ASSY
109	4822 464 50895	SUBCHASSIS
110	4822 464 50896	CHASSIS
111	4822 361 21492	MOTOR
400	4822 444 40561	TRAY FRONT PRINTED

MECHANICAL PARTSLIST SET

400	4822 444 40561	TRAY FRONT PRINTED
401	4822 290 81516	CONNECTOR PLATE
402	4822 462 41933	FOOT RUBBER
403	4822 529 10278	DAMPER
404	4822 444 40563	FRONT ASSY WELDED
406	4822 492 71128	CASSETTE LID SPRING
407	4822 450 61922	WINDOW DISPLAY
408	4822 492 63927	SPRING,CASS.PRESS
409	4822 443 63647	TECHN. DOOR DECK-A
411	4822 443 63649	CASSETTE DOOR DECK-A
412	4822 443 63648	TECHN. DOOR DECK-B
413	4822 443 63685	CASSETTE DOOR DECK-B
414	4822 450 61902	WINDOW DECK-A
416	4822 450 61903	WINDOW DECK-B
417	4822 492 52318	EJECT BUTTON SPRING
418	4822 410 62008	EJECT BUTTON DECK-B
419	4822 410 62007	EJECT BUTTON DECK-A
421	4822 443 41158	ORNAMENTAL FRONT
	4822 459 11078	WORDMARK "PHILIPS"


PLASTITE TORX 3×12 (7×)
501
M3×6 TORX (4×)
M3×6 TORX
401
400
PL. TORX 3×8
M3×6 TCRX
M3×6 TORX (2×)
502
PL. TORX 3×8
507
508
503
PLASTITE TORX 3×8
CONTROL BOARD
PLASTITE TORX 3×8 (4×)
INTERFACE BOARD
PLASTITE TORX 3×12 (8×)
KEYBOARD 1
504
RE TAPE MODULE
512
407
411
413
403
509
506 (8×)
505
RE TAPE DECKS
402 (4×)
408 (4×)
414
412
416
PLASTITE TORX 3×25 (6×)
417
418
510
511 (2×)
KEYBOARD 2
404
LED PCB
514
M3×6 TORX (4×)
409
PLASTITE TORX 3×12
406
417
513
PLASTITE TORX 2×10 (4×)
419
421
PLASTITE TORX 2×10
PLASTITE TORX 3×8
PLASTITE TORX 3×12
PLASTITE TORX 3×25
TORX M3×6

ELECTRICAL PARTSLIST

INTERFACE BOARD

MISCELLANEOUS

1420	4822 071 52501	FUSE 250mA

DIODES

6401	4822 130 30621	1N4148

TRANSISTORS

7403	4822 130 40941	BC558
7404	4822 130 40938	BC548

INTEGRATED CIRCUITS

7401	4822 209 80891	MC7805CT
7402	4822 209 80591	LM317T
7406	5322 209 11532	PC74HC4094P
7407	5322 209 11532	PC74HC4094P
7409	4822 209 81726	MC7812CT
7410	5322 209 85913	MC7912CT
7412	4822 209 80591	LM317T

RESISTORS

3401	4822 050 24701	470R	5%	
3402	4822 050 13302	3k3	1%	0,4W
3403	4822 050 21001	100R	5%	SFR25
3404	4822 050 24703	47k	1%	0,6W
3405	4822 050 24703	47k	1%	0,6W
3406	4822 050 24703	47k	1%	0,6W
3407	4822 050 11803	18k	1%	0,4W
3408	4822 050 24703	47k	1%	0,6W
3409	4822 116 82996	10R	5%	0,33W
3410	4822 050 21002	1k	1%	0,6W
3411	4822 050 21002	1k	1%	0,6W
3412	4822 050 22201	220R	2%	0,25W
3413	4822 050 21002	1k	1%	0,6W
3414	4822 050 21002	1k	1%	0,6W
3415	4822 050 21002	1k	1%	0,6W
3416	4822 050 21003	10k	2%	0,25W
3417	4822 050 21003	10k	2%	0,25W
3418	4822 116 82046	2k2	5%	0,15W
3419	4822 050 21003	10k	2%	0,25W
3424	4822 050 21002	1k	1%	0,6W
3425	4822 050 22701	270R	1%	0,6W
3426	4822 050 23301	330R	2%	0,25W
3427	4822 050 23301	330R	2%	0,25W
3428	4822 050 22701	270R	1%	0,6W
3430	4822 050 22701	270R	1%	0,6W
3431	4822 050 22701	270R	1%	0,6W
3432	4822 050 22701	270R	1%	0,6W
3433	4822 050 23301	330R	2%	0,25W
3434	4822 050 23301	330R	2%	0,25W
3435	4822 050 22701	270R	1%	0,6W
3436	4822 050 22701	270R	1%	0,6W
3437	4822 050 22701	270R	1%	0,6W
3438	4822 050 22701	270R	1%	0,6W
3439	4822 050 22701	270R	1%	0,6W
3448	4822 050 24701	470R	5%	
3449	4822 050 24701	470R	5%	
3450	4822 050 25601	560R	1%	0,6W

CAPACITORS

2401	4822 122 40587	100nF		
2402	4822 124 40435	10μF	20%	50V
2403	4822 124 40435	10μF	20%	50V
2404	4822 124 40433	47μF	20%	25V
2406	4822 122 33195	100pF	10%	50V
2421	4822 122 40587	100nF		
2422	4822 122 40587	100nF		
2423	4822 124 40433	47μF	20%	25V
2424	4822 124 40433	47μF	20%	25V
2425	4822 124 40433	47μF	20%	25V
2426	4822 124 40433	47μF	20%	25V
2427	4822 122 33195	100pF	10%	50V
2430	4822 122 33197	1nF	10%	50V

RE–MODULE

MISCELLANEOUS

1661	4822 071 53151	FUSE 315mA

DIODES

6625	5322 130 31928	BAS16
6626	5322 130 31928	BAS16
6627	5322 130 31928	BAS16
6629	5322 130 80406	BZX84-C6V8
6631	5322 130 34331	BAV70

TRANSISTORS

7625	4822 130 60511	BC847B
7626	4822 130 60511	BC847B
7627	5322 130 60123	BC807-40 (CHIP)
7628	5322 130 60123	BC807-40 (CHIP)
7629	5322 130 60123	BC807-40 (CHIP)
7630	5322 130 60123	BC807-40 (CHIP)
7631	5322 130 60123	BC807-40 (CHIP)
7632	5322 130 60123	BC807-40 (CHIP)
7633	4822 130 42615	BC817-40(CHIP)
7634	4822 130 42615	BC817-40(CHIP)
7635	4822 130 42615	BC817-40(CHIP)
7636	4822 130 42615	BC817-40(CHIP)
7637	5322 130 41982	BC848 (CHIP)
7638	5322 130 41982	BC848 (CHIP)
7639	4822 130 42615	BC817-40(CHIP)
7640	4822 130 42615	BC817-40(CHIP)
7641	5322 130 41983	BC858B(CHIP)
7642	5322 130 41983	BC858B(CHIP)
7643	5322 130 41982	BC848 (CHIP)
7644	5322 130 41982	BC848 (CHIP)
7645	5322 130 41982	BC848 (CHIP)
7646	5322 130 41982	BC848 (CHIP)
7647	5322 130 61569	BC868
7648	5322 130 61569	BC868
7651	4822 130 42615	BC817-40(CHIP)
7652	4822 130 42615	BC817-40(CHIP)
7659	5322 130 41982	BC848 (CHIP)
7660	5322 130 41982	BC848 (CHIP)
7661	5322 130 41982	BC848 (CHIP)
7663	5322 130 41982	BC848 (CHIP)
7664	5322 130 41982	BC848 (CHIP)
7665	5322 130 41982	BC848 (CHIP)
7666	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7701	4822 209 31135	HEF4016BT
7702	4822 209 31135	HEF4016BT
7703	4822 209 31135	HEF4016BT
7704	4822 209 83274	NJM4560D
7705	4822 209 73994	NJM3415D
7706	4822 209 62372	TDA1602A/N3
7708	5322 209 12171	PC74HC4094T
7709	4822 209 31133	COP880C
7711	4822 209 31134	CXA1331S
7720	4822 209 31137	HEF7069UBT
7721	4822 209 31137	HEF7069UBT

COILS

5625	4822 156 20946	OSC.COIL 100kHz
5628	4822 156 20811	COIL 36µH
5629	4822 156 20811	COIL 36µH
5630	4822 156 20811	COIL 36µH

COILS

5631	4822 156 20811	COIL 36µH
5632	4822 242 73768	MPX-FILTER
5633	4822 242 73768	MPX-FILTER
5634	4822 242 73557	CERAMIC RES. 8,46MHz

RESISTORS

1626	4822 100 11392	47k POTMETER		
1627	4822 100 11392	47k POTMETER		
1628	4822 100 11869	TRIMPOT 20k LIN.		
1630	4822 100 11869	TRIMPOT 20k LIN.		
1631	4822 100 11869	TRIMPOT 20k LIN.		
1632	4822 100 11869	TRIMPOT 20k LIN.		
1633	4822 100 11676	POTMETER 10k LIN		
1634	4822 100 11676	POTMETER 10k LIN		
1635	4822 100 11676	POTMETER 10k LIN		
1636	4822 100 11676	POTMETER 10k LIN		
3644	5322 116 55012	47R	5%	2.5W
3645	5322 116 55012	47R	5%	2.5W
3679	4822 116 51455	6R8	10%	2.5W
3820	4822 116 40227	PTC 12V	4R6	25%

CHIP RESISTORS

3501	4822 051 10008	CHIP JUMPER 1206
3502	4822 051 20008	CHIP JUMPER 0805
3503	4822 051 20008	CHIP JUMPER 0805
3504	4822 051 10008	CHIP JUMPER 1206
3505	4822 051 10008	CHIP JUMPER 1206
3506	4822 051 20008	CHIP JUMPER 0805
3507	4822 051 20008	CHIP JUMPER 0805
3508	4822 051 10008	CHIP JUMPER 1206
3509	4822 051 10008	CHIP JUMPER 1206
3513	4822 051 10008	CHIP JUMPER 1206
3515	4822 051 10008	CHIP JUMPER 1206
3516	4822 051 20008	CHIP JUMPER 0805
3517	4822 051 10008	CHIP JUMPER 1206
3520	4822 051 10008	CHIP JUMPER 1206
3525	4822 051 20008	CHIP JUMPER 0805
3527	4822 051 20008	CHIP JUMPER 0805
3528	4822 051 10008	CHIP JUMPER 1206
3529	4822 051 20008	CHIP JUMPER 0805
3530	4822 051 10008	CHIP JUMPER 1206
3531	4822 051 10008	CHIP JUMPER 1206
3532	4822 051 10008	CHIP JUMPER 1206
3533	4822 051 10008	CHIP JUMPER 1206
3534	4822 051 10008	CHIP JUMPER 1206
3535	4822 051 10008	CHIP JUMPER 1206
3536	4822 051 10008	CHIP JUMPER 1206
3537	4822 051 10008	CHIP JUMPER 1206
3538	4822 051 10008	CHIP JUMPER 1206
3539	4822 051 10008	CHIP JUMPER 1206
3540	4822 051 10008	CHIP JUMPER 1206
3542	4822 051 10008	CHIP JUMPER 1206
3543	4822 051 10008	CHIP JUMPER 1206
3544	4822 051 10008	CHIP JUMPER 1206
3545	4822 051 10008	CHIP JUMPER 1206
3546	4822 051 10008	CHIP JUMPER 1206
3547	4822 051 10008	CHIP JUMPER 1206
3548	4822 051 10008	CHIP JUMPER 1206
3549	4822 051 10008	CHIP JUMPER 1206
3550	4822 051 10008	CHIP JUMPER 1206
3551	4822 051 10008	CHIP JUMPER 1206
3552	4822 051 10008	CHIP JUMPER 1206
3553	4822 051 10008	CHIP JUMPER 1206
3554	4822 051 10008	CHIP JUMPER 1206

CHIP RESISTORS

3555	4822 051 10008	CHIP JUMPER 1206		
3556	4822 051 10008	CHIP JUMPER 1206		
3557	4822 051 10008	CHIP JUMPER 1206		
3558	4822 051 10008	CHIP JUMPER 1206		
3559	4822 051 20008	CHIP JUMPER 0805		
3560	4822 051 10008	CHIP JUMPER 1206		
3561	4822 051 20008	CHIP JUMPER 0805		
3562	4822 051 10008	CHIP JUMPER 1206		
3563	4822 051 10008	CHIP JUMPER 1206		
3564	4822 051 10008	CHIP JUMPER 1206		
3565	4822 051 10008	CHIP JUMPER 1206		
3566	4822 051 10008	CHIP JUMPER 1206		
3568	4822 051 20008	CHIP JUMPER 0805		
3570	4822 051 10008	CHIP JUMPER 1206		
3571	4822 051 10008	CHIP JUMPER 1206		
3572	4822 051 20008	CHIP JUMPER 0805		
3573	4822 051 20008	CHIP JUMPER 0805		
3574	4822 051 10008	CHIP JUMPER 1206		
3575	4822 051 10008	CHIP JUMPER 1206		
3576	4822 051 10008	CHIP JUMPER 1206		
3578	4822 051 20008	CHIP JUMPER 0805		
3579	4822 051 20008	CHIP JUMPER 0805		
3581	4822 051 10008	CHIP JUMPER 1206		
3587	4822 051 10008	CHIP JUMPER 1206		
3589	4822 051 10008	CHIP JUMPER 1206		
3590	4822 051 10008	CHIP JUMPER 1206		
3592	4822 051 10008	CHIP JUMPER 1206		
3593	4822 051 20008	CHIP JUMPER 0805		
3594	4822 051 20008	CHIP JUMPER 0805		
3595	4822 051 10008	CHIP JUMPER 1206		
3596	4822 051 20008	CHIP JUMPER 0805		
3600	4822 051 20473	47k	5%	0,1W
3601	4822 051 20103	10k	5%	0,1W
3602	4822 051 20104	100k	5%	0,1W
3603	4822 051 20104	100k	5%	0,1W
3604	4822 051 20223	22k	5%	0,1W
3605	4822 051 20223	22k	5%	0,1W
3606	4822 051 10102	1k	2%	0,25W
3607	4822 051 20223	22k	5%	0,1W
3609	4822 051 20223	22k	5%	0,1W
3610	4822 051 20103	10k	5%	0,1W
3611	4822 051 20103	10k	5%	0,1W
3616	4822 051 20273	27k	5%	0,1W
3617	4822 051 20681	680R	5%	0,1W
3618	4822 051 20681	680R	5%	0,1W
3619	4822 051 20104	100k	5%	0,1W
3625	4822 051 20223	22k	5%	0,1W
3626	4822 051 20472	4k7	5%	0,1W
3628	4822 051 20471	470R	5%	0,1W
3629	4822 051 20223	22k	5%	0,1W
3630	4822 051 20159	15R	5%	0,1W
3631	4822 051 20159	15R	5%	0.1W
3635	4822 051 20471	470R	5%	0,1W
3636	4822 051 20222	2k2	5%	0,1W
3637	4822 051 20222	2k2	5%	0,1W
3638	4822 051 20471	470R	5%	0,1W
3639	4822 051 20471	470R	5%	0,1W
3640	4822 051 20471	470R	5%	0,1W
3641	4822 051 20471	470R	5%	0.1W
3642	4822 051 20222	2k2	5%	0.1W
3643	4822 051 20222	2k2	5%	0.1W
3647	4822 051 20472	4k7	5%	0,1W
3648	4822 051 10102	1k	2%	0.25W
3649	4822 051 10102	1k	2%	0.25W

CHIP RESISTORS

3650	4822 051 20279	27R	5%	0,1W
3651	4822 051 20279	27R	5%	0,1W
3652	4822 051 20105	1M	5%	0,1W
3653	4822 051 20105	1M	5%	0,1W
3654	4822 051 20103	10k	5%	0,1W
3655	4822 051 20103	10k	5%	0,1W
3656	4822 051 20472	4k7	5%	0,1W
3657	4822 051 20472	4k7	5%	0,1W
3658	4822 051 20471	470R	5%	0,1W
3659	4822 051 20471	470R	5%	0.1W
3660	4822 051 20103	10k	5%	0,1W
3664	4822 051 20225	2M2	5%	0.1W
3665	4822 051 20225	2M2	5%	0,1W
3666	4822 051 20221	220R	5%	0,1W
3667	4822 051 20221	220R	5%	0,1W
3668	4822 051 20223	22k	5%	0,1W
3669	4822 051 20223	22k	5%	0,1W
3670	4822 051 20223	22k	5%	0,1W
3671	4822 051 20223	22k	5%	0,1W
3672	4822 051 20223	22k	5%	0,1W
3673	4822 051 20105	1M	5%	0,1W
3674	4822 051 10102	1k	2%	0,25W
3675	4822 051 10102	1k	2%	0,25W
3677	4822 051 20223	22k	5%	0,1W
3678	4822 051 20473	47k	5%	0,1W
3680	4822 051 20473	47k	5%	0,1W
3681	4822 051 20109	10R	5%	0,1W
3682	4822 051 20105	1M	5%	0,1W
3684	4822 051 20472	4k7	5%	0,1W
3685	4822 051 20183	18k	5%	0,1W
3686	4822 051 20183	18k	5%	0,1W
3687	4822 051 10102	1k	2%	0,25W
3688	4822 051 10102	1k	2%	0,25W
3689	4822 051 20101	100R	5%	0,1W
3690	4822 051 20101	100R	5%	0,1W
3691	4822 051 10102	1k	2%	0,25W
3692	4822 051 10102	1k	2%	0,25W
3693	4822 051 10102	1k	2%	0,25W
3694	4822 051 10102	1k	2%	0,25W
3695	4822 051 20153	15k	5%	0,1W
3696	4822 051 20822	8k2	5%	0,1W
3697	4822 051 20103	10k	5%	0,1W
3698	4822 051 20153	15k	5%	0,1W
3701	4822 051 20154	150k	5%	0,1W
3702	4822 051 20154	150k	5%	0,1W
3703	4822 051 20103	10k	5%	0.1W
3704	4822 051 20103	10k	5%	0,1W
3705	4822 051 20223	22k	5%	0,1W
3706	4822 051 20103	10k	5%	0,1W
3707	4822 051 20103	10k	5%	0.1W
3708	4822 051 20103	10k	5%	0,1W
3709	4822 051 20103	10k	5%	0,1W
3710	4822 051 20103	10k	5%	0,1W
3711	4822 051 20182	1k8	5%	0,1W
3712	4822 051 20182	1k8	5%	0,1W
3713	4822 051 20562	5k6	5%	0,1W
3714	4822 051 20562	5k6	5%	0,1W
3715	4822 051 20392	3k9	5%	0,1W
3716	4822 051 20392	3k9	5%	0,1W
3717	4822 051 20822	8k2	5%	0,1W
3718	4822 051 20223	22k	5%	0,1W
3719	4822 051 20823	82k	5%	0,1W
3720	4822 051 20823	82k	5%	0,1W
3721	4822 051 20184	180k	5%	0,1W

CHIP RESISTORS

3722	4822 051 20184	180k	5%	0.1W
3723	4822 051 20474	470k	5%	0.1W
3724	4822 051 20474	470k	5%	0.1W
3725	4822 051 20563	56k	5%	0.1W
3726	4822 051 20563	56k	5%	0.1W
3727	4822 051 20103	10k	5%	0.1W
3728	4822 051 20109	10R	5%	0.1W
3729	4822 051 20104	100k	5%	0.1W
3730	4822 051 20104	100k	5%	0.1W
3731	4822 051 10102	1k	2%	0.25W
3732	4822 051 10102	1k	2%	0.25W
3733	4822 051 20153	15k	5%	0.1W
3734	4822 051 20153	15k	5%	0.1W
3735	4822 051 20822	8k2	5%	0.1W
3736	4822 051 20822	8k2	5%	0.1W
3737	4822 051 20103	10k	5%	0.1W
3738	4822 051 20222	2k2	5%	0.1W
3739	4822 051 10102	1k	2%	0.25W
3740	4822 051 10102	1k	2%	0.25W
3741	4822 051 20332	3k3	5%	0,1W
3742	4822 051 10102	1k	2%	0.25W
3743	4822 051 20332	3k3	5%	0,1W
3744	4822 051 20332	3k3	5%	0,1W
3745	4822 051 20562	5k6	5%	0,1W
3746	4822 051 20562	5k6	5%	0,1W
3747	4822 051 20561	560R	5%	0,1W
3748	4822 051 20561	560R	5%	0,1W
3749	4822 051 20273	27k	5%	0,1W
3750	4822 051 20223	22k	5%	0.1W
3751	4822 051 20243	24k	2%	0,1W
3752	4822 051 20243	24k	2%	0,1W
3753	4822 051 20008	CHIP JUMPER		0805
3754	4822 051 20109	10R	5%	0,1W
3756	4822 051 20222	2k2	5%	0.1W
3757	4822 051 20222	2k2	5%	0.1W
3758	4822 051 20471	470R	5%	0,1W
3759	4822 051 20471	470R	5%	0.1W
3761	4822 051 20103	10k	5%	0,1W
3762	4822 051 20103	10k	5%	0.1W
3764	4822 051 20479	47R	5%	0,1W
3765	4822 051 20223	22k	5%	0.1W
3766	4822 051 20223	22k	5%	0.1W
3767	4822 051 20222	2k2	5%	0.1W
3768	4822 051 20222	2k2	5%	0.1W
3769	4822 051 20222	2k2	5%	0.1W
3771	4822 051 20105	1M	5%	0,1W
3772	4822 051 20223	22k	5%	0.1W
3773	4822 051 20563	56k	5%	0,1W
3774	4822 051 20563	56k	5%	0,1W
3775	4822 051 20273	27k	5%	0,1W
3776	4822 051 20273	27k	5%	0.1W
3777	4822 051 20104	100k	5%	0.1W
3778	4822 051 20104	100k	5%	0.1W
3779	4822 051 20271	270R	5%	0.1W
3780	4822 051 20271	270R	5%	0,1W
3781	4822 051 20271	270R	5%	0.1W
3782	4822 051 20271	270R	5%	0.1W
3783	4822 051 20479	47R	5%	0,1W
3784	4822 051 20479	47R	5%	0.1W
3785	4822 051 20222	2k2	5%	0.1W
3787	4822 051 20103	10k	5%	0.1W
3788	4822 051 20153	15k	5%	0,1W
3789	4822 051 20106	10M	5%	0.1W
3790	4822 051 20272	2k7	5%	0.1W
3791	4822 051 20104	100k	5%	0.1W
3800	4822 051 20109	10R	5%	0.1W
3801	4822 051 20823	82k	5%	0,1W
3802	4822 051 20823	82k	5%	0.1W
3803	4822 051 20104	100k	5%	0.1W
3804	4822 051 20104	100k	5%	0.1W
3811	4822 051 10102	1k	2%	0.25W
3814	4822 051 20472	4k7	5%	0,1W
3815	4822 051 20472	4k7	5%	0,1W
3816	4822 051 20471	470R	5%	0,1W
3817	4822 051 20471	470R	5%	0,1W
3821	4822 051 20222	2k2	5%	0,1W
3822	4822 051 20222	2k2	5%	0,1W
3823	4822 051 20473	47k	5%	0,1W
3824	4822 051 20159	15R	5%	0,1W
3826	4822 051 20332	3k3	5%	0,1W
3827	4822 051 20332	3k3	5%	0,1W
3900	4822 051 20103	10k	5%	0,1W
3901	4822 051 20103	10k	5%	0,1W
3902	4822 051 20103	10k	5%	0,1W
3903	4822 051 20103	10k	5%	0,1W

CAPACITORS

2620	4822 124 40177	47µF	20%	10V
2637	4822 121 51598	2,2nF	5%	400V
2655	4822 124 22263	220µF	20%	25V
2656	4822 124 40177	47µF	20%	10V
2657	4822 124 40433	47µF	20%	25V
2659	4822 124 41584	100µF	20%	10V
2660	4822 124 40177	47µF	20%	10V
2675	4822 124 40246	4,7µF	20%	63V
2676	4822 124 40246	4,7µF	20%	63V
2677	4822 124 40246	4,7µF	20%	63V
2678	4822 124 40246	4,7µF	20%	63V
2683	4822 124 40433	47µF	20%	25V
2688	4822 124 40435	10µF	20%	50V
2713	4822 124 40246	4,7µF	20%	63V
2714	4822 124 40246	4,7µF	20%	63V
2715	4822 124 40246	4,7µF	20%	63V
2716	4822 124 40246	4,7µF	20%	63V
2721	5322 121 42661	330nF	5%	63V
2722	5322 121 42661	330nF	5%	63V
2726	4822 124 41525	100µF	20%	25V
2727	4822 124 40433	47µF	20%	25V
2733	4822 121 51412	560nF	5%	63V
2734	4822 121 51412	560nF	5%	63V
2735	4822 124 40242	1µF	20%	63V
2736	4822 124 40242	1µF	20%	63V
2737	4822 124 40246	4,7µF	20%	63V
2738	4822 124 40246	4,7µF	20%	63V
2739	4822 124 40246	4,7µF	20%	63V
2740	4822 124 40246	4,7µF	20%	63V
2745	4822 124 40239	0,47µF	20%	63V
2746	4822 124 40239	0,47µF	20%	63V
2747	5322 122 33446	3,3nF	10%	63V
2748	5322 122 33446	3,3nF	10%	63V
2754	4822 124 40196	220µF	20%	16V
2757	4822 124 22412	2200µF	20%	16V
2758	4822 124 40246	4,7µF	20%	63V
2759	4822 124 40246	4,7µF	20%	63V
2760	4822 124 40433	47µF	20%	25V
2762	4822 122 31746	1nF	5%	50V

CHIP CAPACITORS

2619	4822 126 12103	680nF	20%	50V
2621	4822 122 33064	330nF	20%	25V
2622	4822 126 10002	100nF	20%	50V
2623	4822 126 10002	100nF	20%	50V
2624	4822 122 31947	100nF	20%	50V
2625	4822 126 10745	150nF	50%	50V
2626	4822 126 10745	150nF	50%	50V
2627	4822 126 12103	680nF	20%	50V
2628	4822 126 12103	680nF	20%	50V
2631	5322 122 33538	150pF	5%	63V
2632	5322 122 33538	150pF	5%	63V
2650	4822 126 10326	180pF	5%	
2651	4822 126 10326	180pF	5%	
2652	4822 122 33216	270pF	5%	50V
2653	4822 122 33216	270pF	5%	50V
2654	4822 122 31727	470pF	5%	63V
2658	5322 122 32654	22nF	10%	63V
2661	4822 122 32575	220pF	10%	500V
2662	4822 122 32575	220pF	10%	500V
2663	5322 122 32268	470pF	10%	50V
2664	5322 122 32268	470pF	10%	50V
2665	5322 122 33538	150pF	5%	63V
2666	5322 122 33538	150pF	5%	63V
2667	5322 122 32268	470pF	10%	50V
2668	5322 122 32268	470pF	10%	50V
2669	5322 122 32531	100pF	5%	50V
2670	5322 122 32531	100pF	5%	50V
2671	4822 126 12102	330nF	20%	50V
2672	4822 126 12102	330nF	20%	50V
2673	4822 126 12101	39nF	10%	50V
2674	4822 126 12101	39nF	10%	50V
2679	5322 122 32268	470pF	10%	50V
2680	5322 122 32268	470pF	10%	50V
2681	5322 122 32268	470pF	10%	50V
2682	5322 122 32268	470pF	10%	50V
2685	5322 122 34123	1nF	10%	50V
2686	5322 122 34123	1nF	10%	50V
2690	4822 126 10002	100nF	20%	50V
2692	5322 126 10223	4,7nF	10%	63V
2694	4822 122 33218	820pF	10%	50V
2695	4822 122 33515	82pF	5%	50V
2696	4822 122 33515	82pF	5%	50V
2697	4822 126 10326	180pF	5%	
2698	4822 126 10326	180pF	5%	
2699	5322 122 32654	22nF	10%	63V
2700	5322 122 32654	22nF	10%	63V
2701	4822 126 10326	180pF	5%	
2702	4822 126 10326	180pF	5%	
2703	4822 122 33216	270pF	5%	50V
2704	4822 122 33216	270pF	5%	50V
2705	5322 122 32448	10pF	5%	50V
2706	5322 122 32448	10pF	5%	50V
2707	4822 122 33893	18nF	10%	63V
2708	4822 122 33893	18nF	10%	63V
2709	5322 122 32531	100pF	5%	50V
2710	5322 122 32531	100pF	5%	50V
2717	5322 122 32268	470pF	10%	50V
2718	4822 122 31727	470pF	5%	63V
2719	5322 122 32268	470pF	10%	50V
2720	5322 122 32268	470pF	10%	50V
2724	4822 126 10002	100nF	20%	50V
2728	4822 122 33496	100nF	10%	63V
2729	4822 122 32999	2,2nF	5%	
2730	4822 122 32999	2,2nF	5%	
2731	4822 122 32999	2,2nF	5%	
2732	4822 122 32999	2,2nF	5%	
2741	5322 122 32531	100pF	5%	50V
2742	5322 122 32531	100pF	5%	50V
2743	4822 122 33174	1,5nF	20%	50V
2744	4822 122 33174	1,5nF	20%	50V
2753	4822 126 10002	100nF	20%	50V
2755	5322 122 32654	22nF	10%	63V
2756	4822 126 10002	100nF	20%	50V
2761	4822 122 33496	100nF	10%	63V
2763	4822 126 10002	100nF	20%	50V
2764	4822 122 33174	1,5nF	20%	50V
2765	4822 122 33174	1,5nF	20%	50V
2766	4822 122 33177	10nF	20%	50V
2767	4822 122 33177	10nF	20%	50V
2768	5322 122 32531	100pF	5%	50V

CD-CONTROL BOARD

MECHANICAL PARTS

	4822 256 91933	FTD HOLDER

MISCELLANEOUS

1422	4822 276 13213	TACT SWITCH
1423	4822 276 13213	TACT SWITCH
1424	4822 276 13213	TACT SWITCH
1425	4822 276 13213	TACT SWITCH
1426	4822 276 13213	TACT SWITCH
1427	4822 276 13213	TACT SWITCH
1428	4822 276 13213	TACT SWITCH
1431	4822 276 13213	TACT SWITCH
1432	4822 276 13213	TACT SWITCH
1433	4822 276 13213	TACT SWITCH
1434	4822 276 13213	TACT SWITCH
1435	4822 276 13213	TACT SWITCH
1436	4822 276 13213	TACT SWITCH
7400	4822 130 91136	DISPLAY

DIODES

6400	4822 130 31981	BZX79-C3V9

TRANSISTORS

7402	4822 130 40941	BC558

INTEGRATED CIRCUITS

7401	4822 209 31522	TMP87CK70F

COILS

1500	5322 242 73697	CERAM.RES. 8MHz

RESISTORS

3400	4822 052 10478	4R7	5%	NFR
3401	4822 052 10478	4R7	5%	NFR
3402	4822 050 22201	220R	2%	0,25W
3403	4822 052 10478	4R7	5%	NFR
3404	4822 050 22203	22k	1%	0,6W
3405	4822 050 21002	1k	1%	0,6W
3406	4822 116 90842	RES. ARRAY 7x10k		
3407	4822 050 21003	10k	2%	0,25W
3408	4822 050 21003	10k	2%	0,25W
3409	4822 050 21003	10k	2%	0,25W
3732	4822 052 10478	4R7	5%	NFR

CAPACITORS

2400	4822 122 10176	4.7nF	10%	50V
2401	4822 122 10176	4.7nF	10%	50V
2402	4822 122 10166	22nF	30%	16V
2403	4822 122 10176	4.7nF	10%	50V
2404	4822 122 90111	CAP ARRAY 7x100pF		
2410	4822 122 90111	CAP ARRAY 7x100pF		

FRONT BOARD (TAPE DECK KEYS)

MISCELLANEOUS

1901	4822 276 13213	TACT SWITCH
1902	4822 276 13213	TACT SWITCH
1903	4822 276 13213	TACT SWITCH
1904	4822 276 13213	TACT SWITCH
1905	4822 276 13213	TACT SWITCH
1906	4822 276 13213	TACT SWITCH
1907	4822 276 13213	TACT SWITCH
1908	4822 276 13213	TACT SWITCH
1909	4822 276 13213	TACT SWITCH
1910	4822 276 13213	TACT SWITCH
1911	4822 276 13213	TACT SWITCH
1912	4822 276 13213	TACT SWITCH
1913	4822 276 13213	TACT SWITCH
1914	4822 276 13213	TACT SWITCH
1915	4822 276 13213	TACT SWITCH
1916	4822 276 13213	TACT SWITCH

DIODES

6900	4822 130 30621	1N4148
6901	4822 130 30621	1N4148
6902	4822 130 30621	1N4148
6903	4822 130 30621	1N4148
6904	4822 130 30621	1N4148
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148
6907	4822 130 30621	1N4148
6930	4822 130 83057	TLHG4200BT
6931	4822 130 83057	TLHG4200BT
6932	4822 130 83056	TLHR4200BT
6933	4822 130 83056	TLHR4200BT
6934	4822 130 83057	TLHG4200BT
6935	4822 130 83057	TLHG4200BT
6936	4822 130 83057	TLHG4200BT
6937	4822 130 83057	TLHG4200BT
6950	4822 130 83057	TLHG4200BT
6951	4822 130 83057	TLHG4200BT
6953	4822 130 83056	TLHR4200BT
6954	4822 130 83057	TLHG4200BT
6955	4822 130 83057	TLHG4200BT
6956	4822 130 83056	TLHR4200BT

INTEGRATED CIRCUITS

7900	5322 209 10421	HEF4094BP

CAPACITORS

2900	4822 122 40587	100nF

CD–BRICK

MISCELLANEOUS

1020	4822 071 51601	FUSE 160mA
1021	4822 071 51601	FUSE 160mA
1250	4822 267 30933	SOCKET CHINCH

DIODES

6103	4822 130 30621	1N4148
6550	4822 130 31981	BZX79-C3V9
6660	4822 130 34173	BZX79-C5V6

TRANSISTORS

7040	4822 130 60887	BF840
7041	5322 130 41982	BC848 (CHIP)
7042	5322 130 41983	BC858B(CHIP)
7043	5322 130 41982	BC848 (CHIP)
7044	5322 130 41982	BC848 (CHIP)
7140	5322 130 42012	BC858 (CHIP)
7141	4822 130 61207	BC848 (CHIP)
7360	4822 130 42804	BC817-25 (CHIP)
7361	4822 130 42804	BC817-25 (CHIP)
7362	5322 130 42012	BC858 (CHIP)
7550	5322 130 42012	BC858 (CHIP)

INTEGRATED CIRCUITS

7000	4822 209 31064	TDA1301T/N1
7060	4822 209 72587	TCA372DP2
7080	4822 209 72587	TCA372DP2
7101	4822 209 63925	FCB61C65L-70T
7102	4822 209 30388	SAA7341GP
7300	4822 209 83274	NJM4560D
7301	4822 209 83274	NJM4560D
7500	4822 209 71579	TY40408
7660	4822 209 72587	TCA372DP2
7700	4822 209 31055	MC68HC05C8-ZC405039

COILS

1002	4822 242 73557	CERAMIC RES. 8,46MHz
1570	4822 242 81151	X-TAL 16,934MHz
1700	4822 242 72527	CERAMIC RES. 4.0 MHz
5250	4822 148 80281	COIL 100µH

RESISTORS

3000	4822 050 21003	10k	2%	0,25W
3001	4822 050 21003	10k	2%	0,25W
3002	4822 050 21003	10k	2%	0,25W
3003	4822 050 21003	10k	2%	0.25W
3004	4822 050 21003	10k	2%	0,25W
3005	4822 050 21003	10k	2%	0.25W
3007	4822 052 10338	3R3		NFR25
3008	4822 052 10338	3R3		NFR25
3014	4822 052 10478	4R7	5%	NFR
3015	4822 050 21002	1k	1%	0.6W
3016	4822 050 21002	1k	1%	0.6W
3049	4822 050 24301	430R	1%	0,6W
3056	4822 050 21204	120k	1%	0,6W
3057	4822 050 25603	56k	1%	0.6W
3058	4822 050 21002	1k	1%	0.6W
3062	4822 116 52244	15k	5%	0,5W
3064	4822 116 52244	15k	5%	0,5W
3065	4822 052 10229	22R	5%	0,33W
3066	4822 052 10108	1R	5%	0.33W
3067	4822 052 10108	1R	5%	0.33W
3072	4822 050 26802	6k8	1%	0.6W

RESISTORS

3073	4822 052 10229	22R	5%	0,33W
3074	4822 116 52244	15k	5%	0,5W
3075	4822 050 21003	10k	2%	0,25W
3081	4822 050 24702	4k7	1%	0,6W
3083	4822 052 10108	1R	5%	0,33W
3084	4822 052 10108	1R	5%	0,33W
3085	4822 050 21003	10k	2%	0,25W
3086	4822 052 10229	22R	5%	0,33W
3087	4822 116 52244	15k	5%	0,5W
3100	4822 050 22202	2k2	1%	0,6W
3103	4822 052 10338	3R3		NFR25
3105	4822 052 10338	3R3		NFR25
3111	4822 052 10229	22R	5%	0,33W
3112	4822 050 22205	2M2	1%	0,6W
3140	4822 116 52234	100k	5%	0,5W
3142	4822 050 24703	47k	1%	0,6W
3143	4822 052 10229	22R	5%	0,33W
3146	4822 050 21003	10k	2%	0.25W
3303	4822 050 21803	18k	1%	0,6W
3305	4822 052 10229	22R	5%	0,33W
3306	4822 052 10229	22R	5%	0,33W
3312	4822 050 22203	22k	1%	0,6W
3314	4822 050 21002	1k	1%	0,6W
3315	4822 050 21002	1k	1%	0,6W
3501	4822 052 10108	1R	5%	0,33W
3502	4822 052 10108	1R	5%	0,33W
3611	4822 116 52303	8k2	5%	0.5W
3615	4822 052 10108	1R	5%	0,33W
3616	4822 052 10108	1R	5%	0,33W
3617	4822 052 10229	22R	5%	0,33W
3701	4822 052 10338	3R3		NFR25

CHIP RESISTORS

3006	4822 051 20103	10k	5%	0,1W
3009	4822 051 20105	1M	5%	0,1W
3010	4822 051 20103	10k	5%	0,1W
3011	4822 051 20103	10k	5%	0,1W
3012	4822 051 10102	1k	2%	0,25W
3013	4822 051 10102	1k	2%	0,25W
3017	4822 051 10102	1k	2%	0,25W
3040	4822 051 10101	100R	5%	0,125W
3041	4822 051 20393	39k	5%	0,1W
3042	4822 051 20334	330k	5%	0,1W
3043	4822 051 20303	30k	5%	0.1W
3044	4822 051 10102	1k	2%	0.25W
3045	4822 051 20101	100R	5%	0,1W
3046	4822 051 10102	1k	2%	0,25W
3047	4822 051 20434	430k	5%	0,1W
3048	4822 051 20101	100R	5%	0,1W
3050	4822 051 20434	430k	5%	0.1W
3051	4822 051 20182	1k8	5%	0,1W
3052	4822 051 20182	1k8	5%	0,1W
3053	4822 051 20362	3k6	5%	0.1W
3054	4822 051 20101	100R	5%	0,1W
3055	4822 051 20124	120k	5%	0,1W
3060	4822 051 20103	10k	5%	0.1W
3061	4822 051 20682	6k8	5%	0.1W
3063	4822 051 20103	10k	5%	0.1W
3070	4822 051 20153	15k	5%	0.1W
3071	4822 051 20103	10k	5%	0.1W
3080	4822 051 20682	6k8	5%	0.1W
3082	4822 051 20153	15k	5%	0,1W
3101	4822 051 20223	22k	5%	0.1W

CHIP RESISTORS

3102	4822 051 20223	22k	5%	0.1W
3106	4822 051 10102	1k	2%	0.25W
3109	4822 051 20222	2k2	5%	0.1W
3110	4822 051 20224	220k	5%	0.1W
3117	4822 051 20182	1k8	5%	0.1W
3118	4822 051 20182	1k8	5%	0,1W
3119	4822 051 10561	560R	2%	0.25W
3141	4822 051 20104	100k	5%	0.1W
3144	4822 051 20223	22k	5%	0.1W
3147	4822 051 20392	3k9	5%	0.1W
3148	4822 051 20473	47k	5%	0,1W
3255	4822 051 10561	560R	2%	0.25W
3256	4822 051 20621	620R	5%	0,1W
3300	4822 051 20223	22k	5%	0,1W
3300	4822 051 20104	100k	5%	0.1W
3301	4822 051 20153	15k	5%	0,1W
3301	4822 051 20273	27k	5%	0,1W
3302	4822 051 20332	3k3	5%	0,1W
3303	4822 051 20123	12k	2%	0,1W
3304	4822 051 20123	12k	2%	0,1W
3307	4822 051 20332	3k3	5%	0,1W
3308	4822 051 20123	12k	2%	0,1W
3309	4822 051 20223	22k	5%	0,1W
3309	4822 051 20104	100k	5%	0,1W
3310	4822 051 20153	15k	5%	0,1W
3310	4822 051 20273	27k	5%	0,1W
3311	4822 051 20183	18k	5%	0,1W
3311	4822 051 20123	12k	2%	0,1W
3313	4822 051 20223	22k	5%	0,1W
3320	4822 116 83933	15k	1%	0,1W
3321	4822 116 83933	15k	1%	0,1W
3322	4822 116 83933	15k	1%	0,1W
3323	4822 116 83933	15k	1%	0,1W
3325	4822 116 83933	15k	1%	0.1W
3326	4822 116 83933	15k	1%	0,1W
3327	4822 116 83933	15k	1%	0,1W
3328	4822 116 83933	15k	1%	0,1W
3360	4822 051 10102	1k	2%	0,25W
3361	4822 051 10102	1k	2%	0,25W
3550	4822 051 20561	560R	5%	0,1W
3551	4822 051 10102	1k	2%	0,25W
3552	4822 051 20223	22k	5%	0,1W
3553	4822 051 10102	1k	2%	0,25W
3610	4822 051 20123	12k	2%	0,1W
3612	4822 051 20123	12k	2%	0,1W
3613	4822 051 20123	12k	2%	0,1W
3614	4822 051 20123	12k	2%	0.1W
3662	4822 051 20103	10k	5%	0,1W
3663	4822 051 20103	10k	5%	0,1W
3664	4822 051 20103	10k	5%	0,1W
3665	4822 051 20561	560R	5%	0,1W
3700	4822 051 20224	220k	5%	0,1W
3706	4822 051 20103	10k	5%	0,1W
3707	4822 051 20103	10k	5%	0.1W
3708	4822 051 20103	10k	5%	0,1W
3710	4822 051 20103	10k	5%	0,1W
3711	4822 051 20332	3k3	5%	0,1W
3713	4822 051 20103	10k	5%	0,1W
3714	4822 051 20103	10k	5%	0,1W
3715	4822 051 20332	3k3	5%	0.1W
3716	4822 051 20103	10k	5%	0.1W
3717	4822 051 20103	10k	5%	0,1W
3718	4822 051 20103	10k	5%	0,1W
3719	4822 051 20103	10k	5%	0,1W

CHIP RESISTORS

3720	4822 051 20103	10k	5%	0.1W
3721	4822 051 20103	10k	5%	0.1W
3722	4822 051 10102	1k	2%	0.25W
3723	4822 051 10102	1k	2%	0.25W
3724	4822 051 10102	1k	2%	0.25W
4000	4822 051 10008	CHIP JUMPER 1206		
4001	4822 051 10008	CHIP JUMPER 1206		
4002	4822 051 10008	CHIP JUMPER 1206		
4003	4822 051 10008	CHIP JUMPER 1206		
4004	4822 051 10008	CHIP JUMPER 1206		
4104	4822 051 10008	CHIP JUMPER 1206		
4105	4822 051 10008	CHIP JUMPER 1206		
4106	4822 051 10008	CHIP JUMPER 1206		
4107	4822 051 10008	CHIP JUMPER 1206		
4108	4822 051 10008	CHIP JUMPER 1206		
4109	4822 051 10008	CHIP JUMPER 1206		
4200	4822 051 10008	CHIP JUMPER 1206		
4302	4822 051 10008	CHIP JUMPER 1206		
4600	4822 051 10008	CHIP JUMPER 1206		
4700	4822 051 10008	CHIP JUMPER 1206		
4701	4822 051 10008	CHIP JUMPER 1206		

CAPACITORS

2010	5322 124 21643	22µF	20%	40V
2012	4822 124 40272	33µF	20%	16V
2015	5322 124 21643	22µF	20%	40V
2017	5322 124 21643	22µF	20%	40V
2042	5322 124 21643	22µF	20%	40V
2052	5322 124 21643	22µF	20%	40V
2062	4822 124 40272	33µF	20%	16V
2063	4822 124 40272	33µF	20%	16V
2081	5322 124 21643	22µF	20%	40V
2083	5322 124 21643	22µF	20%	40V
2103	4822 124 40849	330µF	20%	16V
2105	5322 121 42661	330nF	5%	63V
2107	4822 124 41584	100µF	20%	10V
2109	4822 124 40242	1µF	20%	63V
2111	5322 121 42386	100nF	5%	63V
2116	4822 124 40242	1µF	20%	63V
2119	4822 124 41584	100µF	20%	10V
2122	4822 124 40849	330µF	20%	16V
2301	4822 124 40272	33µF	20%	16V
2302	4822 124 40246	4,7µF	20%	63V
2304	4822 124 40272	33µF	20%	16V
2305	4822 124 40246	4,7µF	20%	63V
2311	4822 124 40246	4,7µF	20%	63V
2500	4822 124 80148	2200µF	20%	16V
2502	4822 124 41853	1000µF	20%	16V
2702	4822 124 40272	33µF	20%	16V

CHIP CAPACITORS

2000	5322 122 31865	1,5nF	10%	63V
2001	5322 116 80853	560pF	5%	63V
2003	4822 122 32575	220pF	10%	500V
2004	4822 122 32575	220pF	10%	500V
2005	4822 122 32575	220pF	10%	500V
2006	4822 122 32575	220pF	10%	500V
2007	4822 122 32575	220pF	10%	500V
2008	4822 122 32575	220pF	10%	500V
2009	4822 122 33496	100nF	10%	63V
2011	4822 122 33496	100nF	10%	63V
2016	4822 122 33496	100nF	10%	63V
2018	4822 122 33496	100nF	10%	63V

CHIP CAPACITORS

2019	4822 122 33809	22nF	+80/-20%	
2040	5322 122 32654	22nF	10%	63V
2041	4822 126 10326	160pF	5%	
2043	5322 122 31863	330pF	5%	50V
2044	4822 126 10326	180pF	5%	
2045	5322 122 32452	47pF	5%	50V
2046	5322 122 32452	47pF	5%	50V
2047	5322 122 32531	100pF	5%	50V
2048	5322 122 32965	18pF	5%	50V
2049	4822 126 10326	180pF	5%	
2050	4822 126 10326	180pF	5%	
2051	5322 122 31863	330pF	5%	50V
2060	4822 122 33496	100nF	10%	63V
2061	4822 122 33496	100nF	10%	63V
2064	4822 122 33342	33nF	10%	63V
2065	4822 122 33496	100nF	10%	63V
2066	4822 122 33175	2.2nF	20%	50V
2070	5322 126 10223	4.7nF	10%	63V
2071	4822 122 33496	100nF	10%	63V
2072	4822 126 10326	180pF	5%	
2080	4822 122 33496	100nF	10%	63V
2082	4822 122 33496	100nF	10%	63V
2084	4822 126 10326	180pF	5%	
2085	4822 122 33496	100nF	10%	63V
2086	5322 126 10465	3.9nF	10%	63V
2101	5322 122 32452	47pF	5%	50V
2102	4822 122 33175	2,2nF	20%	50V
2104	4822 122 33496	100nF	10%	63V
2106	4822 122 33496	100nF	10%	63V
2108	4822 122 33809	22nF	+80/-20%	
2110	5322 122 32659	33pF	5%	50V
2112	4822 122 33496	100nF	10%	63V
2114	5322 122 32658	22pF	5%	50V
2115	5322 122 32658	22pF	5%	50V
2117	5322 126 10223	4.7nF	10%	63V
2118	5322 126 10223	4.7nF	10%	63V
2120	4822 122 33496	100nF	10%	63V
2121	4822 122 33496	100nF	10%	63V
2123	4822 122 33496	100nF	10%	63V
2124	5322 122 32659	33pF	5%	50V
2125	5322 126 10223	4.7nF	10%	63V
2140	4822 122 33496	100nF	10%	63V
2141	4822 122 32542	47nF	10%	63V
2253	4822 122 33105	56nF	10%	63V
2300	5322 122 31863	330pF	5%	50V
2300	5322 116 80853	560pF	5%	63V
2303	4822 122 33216	270pF	5%	50V
2306	4822 122 33496	100nF	10%	63V
2309	4822 122 33216	270pF	5%	50V
2310	5322 122 31863	330pF	5%	50V
2310	5322 116 80853	560pF	5%	63V
2312	4822 122 33219	1,8nF	10%	50V
2313	4822 122 33219	1,8nF	10%	50V
2501	4822 122 33496	100nF	10%	63V
2503	4822 122 33496	100nF	10%	63V
2504	4822 122 33496	100nF	10%	63V
2550	4822 122 33175	2.2nF	20%	50V
2610	4822 122 33496	100nF	10%	63V
2611	4822 122 33496	100nF	10%	63V
2612	4822 122 33496	100nF	10%	63V
2703	4822 122 33809	22nF	+80/-20%	
2704	4822 122 33175	2.2nF	20%	50V